

ANNUAL REPORTS
OF
THE PRESIDENT AND THE TREASURER
OF
HARVARD COLLEGE
1897-98



CAMBRIDGE
Published by the University
1899

Earning and Labor.

LIBRARY

OF THE

University of Illinois.

CLASS

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PRESIDENT'S REPORT FOR 1897-98.

TO THE BOARD OF OVERSEERS :—

The President of the University has the honor to submit the following Report for the academic year 1897-98, namely, from September 30, 1897, to September 29, 1898 :—

Justin Winsor, Librarian, died on the 22d of October, 1897, in the sixty-seventh year of his age. He had served the University for twenty years in the prime of his powers. When he became University Librarian he had already attained eminence as the Librarian of the Boston Public Library ; and he brought to the University the library policy which he had there developed. His main object as a Librarian was to get books profitably used. He thought “ nothing of more importance than the provision of large classes of books to which unrestricted access could be had.” He had great skill in devising the mechanical arrangements and modes of service which facilitate the use of books. Accordingly the University Library during his administration became a new intellectual resource and appliance for both teachers and students, and an invaluable means of promoting better methods of instruction. It became also for teachers and learned men a distinct attraction toward Cambridge and the service of the University.

When Mr. Winsor came to Cambridge in 1877 he definitely intended to use his leisure for historical research and authorship ; and his numerous and massive publications during the following twenty years testify to his wonderful capacity for steady productive labor. Long before his death he came to be recognized as the most eminent librarian in the United States, and the most important contributor of his day to American historical and cartographical research. What he did to win

respect for the profession of librarian is well expressed in the resolutions adopted by the staff of the Library at the time of his death (p. 227). In scholarship he exhibited two rare and delightful qualities—a perfect candor, and a remarkable generosity toward other scholars. Seldom has a man of strong character and definite intellectual purpose attained more completely or successfully the main objects of his faithful labors.

A list of the resignations and appointments for the year will be found in the Appendix (pp. 289–299).

The resignation of Alexander Agassiz in April, 1898, as Director of the Museum of Comparative Zoölogy was an event of grave significance, and the Corporation made it the occasion of recording Mr. Agassiz's devoted services and great gifts to the Museum. With one interval of three years (1866–69) he has been in the service of the Museum in various capacities ever since 1860. He was Agent from 1860 to 1865, and Assistant in charge of Worms, Echinoderms, and Acalephs. During part of the year 1866 he was in charge of the Museum. In 1869 he was appointed Assistant in charge of Radiates; and early in 1874 he was made a member of the Faculty of the Museum, Curator, and a member of the Board of Trustees. Since 1869 he has never received any salary. Between September 1, 1871, and September 1, 1897, Mr. Agassiz expended for the benefit of the Museum from his private means, without making any communication on the subject to the President and Fellows, over \$750,000, including his expenditures on objects now formally conveyed to the Corporation, beside contributing about \$50,000 to other University objects in gifts known at the time to the President and Fellows. An analysis of these great gifts, which were distributed over a period of twenty-six years, will be found in the Appendix (p. 300). Reference will be made later in this Report to Mr. Agassiz's final deed of gift and to the favorable conditions on which it was gladly accepted by the Corporation.

Edward William Hooper, Treasurer of the University since 1876, resigned his office on the 31st of July, 1898. He had been Steward for two years (1872–74) before he became Treasurer, so that his whole term of service covers twenty-

four years. It was Professor E. W. Gurney who first drew Mr. Hooper into the service of the University as Steward. How great a benefit Professor Gurney thus conferred on the institution may be seen in the results of Mr. Hooper's administration, results which will be described later in this Report.

On the 29th of November, 1897, Professor Charles Eliot Norton resigned his Professorship of the History of Art, the resignation to take effect on the 1st of September, 1898. On the 20th of December following the Corporation elected him Professor of the History of Art, *Emeritus*, with a retiring allowance. The University will always remain under great obligations to Professor Norton for establishing a department of instruction which at first, in 1875, was without a parallel, and which has proved to be of great interest and value to thousands of students of different ages, dispositions, and tendencies, having been to many of them a means of intellectual awakening, and to all a precious element in their mental and moral development.

Professor James Mills Peirce asked leave of absence for 1898-99, and resigned the Deanship of the Faculty of Arts and Sciences, the resignation to take effect on the 1st of September, 1898. Professor Peirce was Dean of the Graduate School from 1890 to 1895, when he was transferred to the Deanship of the Faculty of Arts and Sciences. He took a strong interest in promoting the efficiency of the Faculty under its new organization of 1890; and in the last year of his service as Dean he rearranged, and almost reconstructed, the Annual Catalogue.

The ninth statute was amended during the year in two respects, — first, on December 13th, 1897, by the insertion of the degree of Master of Science in the list of ordinary degrees; and secondly, June 28th, 1898, by adding the words, “of the degree of Doctor of Dental Medicine, and of the degree of Doctor of Veterinary Medicine,” to the last sentence but one of the statute, so as to provide that there shall be two grades of these degrees, as there are already of the degrees of Bachelor of Laws and Doctor of Medicine. The first amendment established in the University the new degree of Master of Science

intermediate between the degrees of Bachelor of Science and Doctor of Science, and therefore corresponding in position with the degree of Master of Arts which stands between the degree of Bachelor of Arts and the degree of Doctor of Philosophy. (See the report of the Dean of the Faculty of Arts and Sciences, p. 98.) The establishment of this degree will doubtless tend to develop in the Lawrence Scientific School instruction suitable for men who have already received the Bachelor's degree in that School. The second amendment of the statute will permit the Faculties of the Dental and Veterinary Schools to give a degree *cum laude*, — a distinction which has been found useful by the Faculties of Law and Medicine.

The titles of two important professorships in the Faculty of Arts and Sciences were changed in October, 1897; that of the professorship held by Dr. William James was changed from Psychology to Philosophy, and that of the professorship held by Dr. Hugo Münsterberg from Experimental Psychology to Psychology. These changes were made at the request of the gentlemen most nearly concerned.

In the Medical School two endowed professorships will date from the year under review, — the Williams Professorship of Ophthalmology, endowed by Dr. Henry Willard Williams, M.D. 1849, with a fund which amounted on July 31st, 1898, to \$32,540.57, and the Moseley Professorship of Surgery, endowed with the William Oxnard Moseley Fund, which amounted on the 31st of July, 1898, to \$52,900.33. In the application of this endowment to the principal professorship of Surgery in the Medical School the President and Fellows exercised their discretion as provided in the terms of the bequest. This endowment came from the estate of William Oxnard Moseley, A.B. 1836, of Newburyport, in memory of his son William Oxnard Moseley, A.B. 1869, M.D. 1878. No gift to a university can be more beneficial than the endowment of a professorship.

A third fund for the maintenance of an annual lecture or lectures was received by the Corporation in January, 1898, the earliest of such endowments at Harvard University being

the Dudleian Lectureship (1755), and the second the Ingersoll Lectureship on the Immortality of Man (1896). Mrs. William Belden Noble of Washington has given \$20,000 to the University to maintain an annual course of lectures in memory of her husband, and to continue the work of his life. He was a graduate of Harvard College in 1885, and of the Episcopal Theological School in Cambridge, and became a clergyman of that denomination. During the period of his education and his short professional career he was in perfect sympathy with the religious teaching of the late Phillips Brooks, and the new foundation is to be used in close association with the Phillips Brooks House and with the work there to be carried on. "The lectures may include Philosophy, Literature, Art, Poetry, the Natural Sciences, Political Economy, Sociology, Ethics, History, both Civil and Ecclesiastical, as well as Theology and the more direct interests of the religious life," the main object of the lectures being to bring to bear the influence of Jesus Christ in every department of human thought and activity. The management of these lectures is to be in the hands of a board of seven persons called Trustees, an organization for which the management of the Dudleian Lectures afforded a type. The lectures are to be printed every year, the copyright to be in the name of the lecturer. The number of lectures for any one year is to be not fewer than six or more than twelve.

From January to May 1898 an active discussion went on before the Massachusetts Legislature and the whole body of the alumni of Harvard College on the expediency of extending the right of suffrage for the Board of Overseers beyond the limits established by the invaluable act of 1865. That act provides that the voters shall be Bachelors or Masters of Arts and holders of honorary degrees. For many years the Corporation and Overseers have received from time to time from the alumni of the professional departments of the University, or from associations of such alumni, from the Faculties of the schools, and from the University Council petitions and memorials for an extension of this limited suffrage. Committees of the Board of Overseers have made successive

reports on the subject; and the Board itself has repeatedly voted on the question, but always with a negative result until the 12th of January, 1898, when the Board passed a resolution in favor of extension of the suffrage, and appointed a Committee to urge upon the Legislature the passage of an amendment to the act of 1865. No action concerning the extension of the suffrage has ever been taken by the President and Fellows, that body believing that all initiatory action on a question affecting the membership of the Board of Overseers should be taken by that Board. The President and Fellows have, therefore, always forwarded to the Board of Overseers without comment petitions and memorials on this subject addressed to the President and Fellows. In accordance with this general view the Corporation, when invited by the Overseers to join them in petitioning the Legislature for an amendment of the act of 1865, voted that "The President and Fellows think it undesirable to take part in the present application of the Board of Overseers to the General Court for an amendment of the act of 1865." The application of the Overseers was successful in the House of Representatives, but in the Senate was referred to the next General Court by a narrow majority. The cause of this failure was undoubtedly the division of opinion on the subject among the Harvard graduates who were members of the Legislature.

The record of the services of Harvard graduates and undergraduates in the army and navy during the war with Spain is still incomplete, partly because a considerable number of the men are still in the service, and partly because it has thus far been impossible to obtain full information about all the men who entered the service. It is fitting, however, that the main facts of the record to date should be mentioned in this report. Mr. William G. Brown, Deputy Keeper of the University Records, has obtained information, more or less complete, about the war service of 384 men — undergraduates, graduates, and former students for terms too short to lead to a degree. He is confident, from his correspondence during the past two months, that the total number of Harvard men who served in the war will not fall short of 400. The 384 persons whose records are

already tolerably full may be classified as follows by their academic history :—

Harvard A.B. only	148
Harvard A.B. and some other Harvard degree [A.M., 6; LL.B., 7; M.D., 20; Ph.D., 1; S.B., 2]	36
Harvard professional degree only [S.B., 3; D.B., 1; A.M., 1; LL.B., 8; M.D., 25; D.M.D., 2]	40
Harvard professional degree and a Bachelor's degree from another institution	21
Former temporary College students	37
Former temporary professional students	17
College undergraduates	47
Undergraduates of other schools	38
Total	384

The positions held by these 384 persons in the army and navy are indicated in the following table (the positions of 12 persons remaining at present unknown) :—

ARMY.

Major-Generals	3
Brigadier-Generals	3
Colonels	2
Lieutenant-Colonels	7
Majors	8
Captains	28
1st Lieutenants	28
2d Lieutenants	26
Chaplain, rank of Captain	1
Surgeons, rank of Major	10
Assistant Surgeons, rank of 1st Lieutenant	15
Acting Assistant Surgeons	5
Sergeants	13
Corporals	29
Privates	120
Sergeant, Hospital Corps	1
Privates, Hospital Corps	6
Contract Surgeons	2

NAVY.

Secretary of the Navy.	
Assistant Secretary of the Navy, until the declaration of war.	
Commander	1
Lieutenants	6
Lieutenants, junior grade	2
Ensigns	14

Surgeons, rank of Lieutenant	3
Passed Assistant Surgeons, rank of Lieutenant, junior grade	4
Assistant Surgeons, rank of Ensign	6
Paymasters, rank of Ensign	2
2d Lieutenants of Marines	2
Inspector of vessels in construction	1
Warrant and petty officers	12
Machinist, fireman, seamen, and landsman	12

The proportion of men enlisted as privates in the army is probably greater than it would have been if the militia regiments had not been accepted by the United States government as organizations; for on the spur of the moment a considerable number — both of graduates and of undergraduates — enlisted in those regiments in their respective states; moreover, forty-seven Harvard men enlisted in the 1st U. S. Volunteer Cavalry, Colonel Leonard Wood commanding, the greater part of whom remained privates at the end of the short war.

The following table shows the distribution of the Harvard men in the army among the organizations of the several states, and in those corps which did not belong to any particular state: —

Massachusetts	84	New Hampshire, Ohio, } each 1 = 4	
New York	43	South Carolina, South } each 1 = 4	
Pennsylvania	13	Dakota, }	
California	5	Volunteer staff-officers	17
Illinois	5	1st U. S. Volunteer Cavalry . . .	47
Rhode Island	5	1st U. S. Volunteer Engineers . .	9
Maryland	4	3rd U. S. Volunteer Engineers . .	1
Missouri	4	Astor Battery	1
Connecticut	3	Hospital Corps	7
Iowa	3	Regulars	18
Arizona	2	State or branch of the service not	
Indiana	2	stated	25
Alabama, Arkansas, Geor- } each 1 = 5			
gia, Montana, Nebraska, }			

The Administrative officers of the University had, of course, no concern with the enlistment of any of these Harvard men, except those who were undergraduates in some department when the war broke out. Undergraduates who wished to enlist were advised to make sure that they were physically fit

for the service, and to consider carefully their duty to their families; they were also advised not to enlist in groups as students, but to scatter themselves through many organizations. The effort of the President and the Deans was to prevent hasty and inconsiderate enlistment, but not to discourage the enlistment of able-bodied young men of legal age whose family circumstances warranted them in offering their lives to the country. So long as there are wars, it will be expedient, especially in democracies, that the best educated young men bear their full share in war's hardships and dangers. The highly educated class must show itself as brave, tough, and disinterested as any other and as faithful to ideals. If its education has been right, it will always show itself superior in these respects to every other class.

There has long been a popular impression that high scholars in College are almost always men of poor physique, distinctly inferior in that respect to the average College student. The following comparisons go far to discredit this vague opinion:—

Grades according to the Gymnasium strength tests.	Grades attained according to best tests (out of several) by all College men examined in 1896-97 and 1897-98.		Grades attained according to best tests by Scholarship men on work done in 1896- 97 and 1897-98.	
	<i>Number.</i>	<i>Per cent.</i>	<i>Number.</i>	<i>Per cent.</i>
*	61	3	6	2+
A	237	13	36	10—
B	320	17	50	15
C	488	26	89	27—
D	419	23	99	29
E	221	12	45	13+
F	90	5—	9	3—
G	14	1—	3	1
Total . .	1850		337	

The grades need to be interpreted by the following statements: The University crew and foot-ball team must attain grade *B*; class crews and foot-ball teams grade *C*; and University and class ball-nines and lacrosse teams grade *D*. Since grade *D*, or any higher, means a satisfactory degree of physical vigor, it appears that 82 per cent. of all the College men examined during two years, and 83 per cent. of the scholarship winners on the same two years, had a quite sufficient degree of strength and general vigor. Moreover, there is no larger per-

centage of weaklings among the scholarship holders than in the whole body of students examined. These statistics are to be accepted only with some reserve. Not every student in College was examined in 1896-97 and 1897-98, and not every scholarship winner on the work of those years; yet the proportion examined is large enough to warrant a just inference, if the result be not supposed to be exact. Among the scholarship holders were 67 holders of scholarships without stipend; but the standing of these men as regards strength was very much like that of other scholarship holders. It follows from these facts that at least 82 per cent. of all Harvard College students and young graduates are physically fit for the service of the country in time of war, just as they are fit for all sorts of strenuous work in business and the professions in time of peace.

It is an interesting inquiry how far the claim that the highly competitive athletic sports develop qualities which are exercised and tested in the work of the soldier or sailor is justified by the experience of the University in connection with the war with Spain. From the five classes, 1898, 1899, 1900, 1901, and 1902, fourteen of the ninety-seven young men who enlisted are recognizable as athletes, if we include among athletes men who rowed on a class crew or a Weld crew. In the five classes from 1897 to 1893, there were ten men recognizable as athletes out of eighty-six men who enlisted. In the older classes the proportion of athletes was decidedly small. One excellent authority made the number of athletes on the whole list of 384 names to be 34; another, who included managers of teams, members of the shooting-club, wrestlers, and polo players, counted 42 recognizable athletes in the entire list of Harvard volunteers. These figures do not indicate that the men who take part in the highly competitive athletic sports are on that account more inclined to enlist as soldiers or sailors than the ordinary student who is physically sound enough to pass the medical examination for the army or navy. It is probable that a taste for riding or shooting would do more to take a man into the army in time of war than a taste for foot-ball or base-ball; and it is certain that skill in the management of boats or of machinery would tend much more to take a college

man into the navy than any acquired skill in the highly competitive games. It has been supposed that foot-ball was especially adapted to training soldiers; but the fact seems to be that nothing can be more unlike actual fighting than the bodily collisions which take place between foot-ball players. In modern warfare no one seems to see his adversary, and the constant thought of the men in line of battle is to conceal or cover themselves and their weapons while advancing or waiting.

For comparison with the proportional number of recognized athletes who went to the Spanish war, the following table is of interest, since it shows the proportional number of persons in the four College classes who took part in athletic sports during the year under review. A table of this sort is compiled every year for the information of the Committee on the Regulation of Athletic Sports.

THE NUMBER OF STUDENTS WHO TOOK IN 1897-98 THE PHYSICAL EXAMINATIONS PRESCRIBED FOR ALL ENGAGED IN PUBLIC ATHLETIC CONTESTS.

	Class of '98.	Class of '99.	Class of '00.	Class of '01.	Spec.	Grad.	Law.	Med.	Total.
Football	25	19	28	39	..	..	6	1	118
Baseball	13	19	16	13	..	1	2	1	65
Rowing	11	12	11	7	..	..	..	1	42
Track Athletics	18	29	34	36	2	..	7	3	129
Lacrosse	4	2	3	1	..	..	3	1	14
Ice Polo . . . . .	..	2	1	1	..	..	1	1	6
Football & Baseball	2	7	3	5	..	..	..	1	18
Football & Rowing	2	2	4	4	..	..	..	..	12
Football & Track Athletics	4	1	5	4	..	..	..	..	14
Football & Polo . . . . .	..	1	1	..	..	..	..	..	2
Baseball & Track Athletics . . . . .	..	1	..	2	..	..	..	..	3
Baseball & Polo	1	..	..	..	..	..	..	..	1
Baseball & Rowing . . . . .	..	1	..	..	..	..	..	..	1
Rowing & Track Athletics . . . . .	..	..	..	1	..	..	..	..	1
Polo & Track Athletics . . . . .	..	1	..	..	..	..	..	..	1
F. B., B. B., & Track Athletics . . . . .	..	..	1	1	..	..	..	..	2
Football, Baseball, & Polo . . . . .	..	..	1	..	..	..	..	..	1
Football, Tr. Ath. & Rowing	1	..	..	..	..	..	..	..	1
Track Athletics Polo & Lacrosse . . . . .	..	..	..	1	..	..	..	..	1
	81	97	108	115	2	1	19	9	432
Whole number in the class	342	387	450	471					

WHOLE NUMBER ENGAGED IN VARIOUS SPORTS ACCORDING TO THE GYMNA- SIUM RECORD.	NUMBER IN EACH SPORT WHO EN- GAGED IN OTHER SPORTS.	%
Football 164	Football 46	28
Baseball 91	Baseball 26	29
Rowing 57	Rowing 15	26
Track Athletics 151	Track Athletics . . . 22	15
Lacrosse 15	Lacrosse 1	7
Ice Polo 12	Ice Polo 6	50

The above table does not give a complete record of the students who took vigorous part in out-of-doors sports. Thus, only 151 men were examined for track athletics; but 277 men were under the direction of Instructor Lathrop. Again, the Weld Boat Club contained 413 members, and 153 students presented themselves as candidates for the Freshmen crew. Lawn tennis does not appear at all on the records.

Some progress was made during the year 1897-98 in the intelligent management of the competitive athletic sports. The evils of excessive training were still manifest, but they were lessened. In several sports paid professional trainers were again employed, but with the sanction of the Committee on the Regulation of Athletic Sports. These men are of two kinds: they sometimes are experts in the particular sports for which they train aspirants; but sometimes, knowing little about the sports, they still make themselves very useful, if they have tact and good sense, as personal attendants or nurses.

The reasons for treating the Freshman crew and Freshman ball-teams differently from the same organizations in the older classes seem to be losing their force in the minds of some of the graduates and undergraduates who take a strong interest in athletic sports; and it may therefore be hoped that the Freshman class will soon be treated in regard to athletics like the other classes. The early organization of the Freshman crew and Freshman foot-ball team, made before the men have got acquainted with each other, and while the best leaders in these sports are still unproved, is an injurious influence which is often a lasting one. Intercollegiate foot-ball for young men who have just joined the University causes a grave interference with their studies at the worst possible time, namely, at the very beginning of their University career. The injury which

College and Scientific School members of the Freshman foot-ball teams suffer is plainly to be seen in the following table, although the November grades are never conclusive, and the membership of the team changes so much during the season that it is hard to determine what men should be included in the table. For this reason, and also because a Freshman can only very rarely be of proved capacity for the severest strains, Freshmen should be excluded from University crews and ball-teams.

SUMMARY OF THE RECORDS OF COLLEGE AND SCIENTIFIC SCHOOL FRESHMEN ON THE FRESHMAN FOOT-BALL TEAMS FOR THE YEARS 1897 AND 1898.

Year.	Number of Men.		November Grades.					Number of Absences in about eight weeks.	
	College.	Scientific School.	A	B	C	D	E	Excused.	Other.
1898	14	7	8	5	23	39	20	112	127
1897	15	7	0	17	44	38	13	92	131

In all the sports it is very desirable to develop some agreeable, local competition, so that a large number of crews and teams may always be in practice. Thus, two or three more clubs for rowing, like the Weld Club with its 413 members are needed, in order to put a large number of crews on the river and develop a wholesome and interesting competition at home.

The large income derived from the principal foot-ball games has a tendency to encourage extravagance in all the sports; but a considerable portion of the gate-money has been in recent years devoted to the permanent improvement of fields and buildings.

The total number of students who engage in vigorous out-of-door sports continues to be very large, and the good physical influence of these sports, in general, is indubitable, although it is still a matter of doubt whether the intensified games which mainly interest the public have a good physical effect on the players. Great pains are taken to prevent unfit men from engaging in the violent sports; but in spite of all these efforts men physically unfit for such strains do get into University crews and ball-teams. Whether the fit men who take part in the hotly contested races and games are thereby made physically fitter to bear the subsequent strains of business or

professional life is still an open question. Cases of demonstrated injury are not infrequent; but cases of proved profit or advantage are not easily to be exhibited. The policy of the University is to resist steadily the moral and physical evils which are easily developed in connection with intercollegiate sports; and to take all possible care that individual students be not injured through their own ignorance or lack of judgment. It is always to be put down to the credit of vigorous out-of-door sports that they tend to deliver young men from sloth, sensuality, and luxury. The principal benefit of athletics accrues to the hundreds of students who play wholesome games and take vigorous exercise without ever being heard of in intercollegiate contests.

One of the most interesting questions concerning the tendencies of organized American education is the question relating to the future of the A.B. degree. Fifty years ago the American colleges and universities had no other preliminary or fundamental degree. They now confer, not only the degree of Bachelor of Arts, but contemporaneous degrees in considerable variety, bearing such titles as Bachelor of Letters, Bachelor of Science, and Bachelor of Philosophy, and various degrees in engineering. These new degrees commonly represent a larger attainment in science and mathematics than the degree of Bachelor of Arts, and a smaller attainment in languages, particularly in the dead languages; and, as a rule, the examinations which admit to the courses which conduct to these new degrees are of a lower grade than the examinations which admit to the course for the degree of Bachelor of Arts. On the other hand, in instances not a few, the course of study which ends in one of these new degrees is more severe than the parallel course of study which leads to the degree of Bachelor of Arts. The use of the new degrees, although practically unknown before 1848, has now become in all the state universities decidedly larger than the use of the traditional degree of Bachelor of Arts; while in the older endowed institutions, the new degrees are rapidly gaining ground on the old degree. In the following table the facts of this important movement can be conveniently studied. All special students are omitted from this table, because they are not candidates for any degree.

Of the nine universities represented in the table, three are state universities, — namely, Michigan, Wisconsin, and California. Five are endowed universities over which the state has little direct control, — namely, Yale, Pennsylvania, Columbia, Princeton, and Brown; and Cornell, the remaining university, is an endowed institution which is largely subsidized both by the state and by the United States. In the most conservative institutions, the degree of A.B. is losing ground in comparison with the new degrees. Thus, in Yale University the number of A.B.s conferred has not doubled in fifteen years, whereas the number of Ph.B.s conferred has much more than doubled. At Princeton University, the number of students studying for the degree of A.B. is half as large again as it was fifteen years ago; but the number of students studying for the modern degrees is nearly four times as great as it was fifteen years ago. At Columbia University, the number of students studying for the new degrees has generally been greater than the number of students studying for the old degree; but the course for the A.B. has apparently led students more regularly to the degree than the courses for the other degrees. In order to understand the situation in New England, it is necessary to take account of the rise of the Massachusetts Institute of Technology which confers every year a large number of S.B. degrees. By adding together the candidates for the S.B. degree of the Massachusetts Institute of Technology and the candidates for the S.B. in Harvard University, and comparing this total with the number of candidates for the A.B. at Harvard University, one gets a clear impression of the immense educational change which has taken place in Eastern Massachusetts since the Institute of Technology was founded in 1865. This invasion of the old province of the Bachelor of Arts degree is going on in all the advanced institutions of education at a rapid rate, and is doubtless based on changed social and industrial conditions which are quite beyond the control of those institutions. It is therefore a pressing question how to secure and defend a legitimate province for the degree of Bachelor of Arts. Thus far, Harvard has maintained the relative numerical importance of this traditional degree better than any other American institution; and there can be no doubt that it is the Elective System in Harvard College

UNIVERSITY OF MICHIGAN.	Students studying for the degree of A.B.	171	163	170	176	174	166	195	232	259	255	237	248	249	269	300
	Do. L.B., S.B., or Ph.B.	232	280	306	364	389	463	580	680	763	876	842	945	969	985	1047
	A.B. degrees conferred	52	37	50	43	55	35	51	55	62	73	60	66	57	64	76
	L.B., S.B., and Ph.B. degrees conferred	31	41	43	54	71	70	83	94	105	152	133	172	195	176	207
YALE UNIVERSITY.	Students studying for the degree of A.B.	612	580	563	570	614	688	736	832	888	966	1086	1150	1199	1237	1241
	Students studying for the degree of Ph.B.	212	249	243	273	285	300	336	374	451	516	585	656	670	553	543
	A.B. degrees conferred	148	119	135	152	119	123	148	185	182	176	239	248	271	287	285
	Ph.B. degrees conferred	43	69	62	57	81	72	64	89	102	109	143	163	158	172	110
CORNELL UNIVERSITY.	Students studying for the degree of A.B.	26	29	28	45	60	83	111	124	139	139	136	136	149	172	305
	Do. Ph.B., L.B., S.B., C.E., or M.E.	339	484	468	562	633	746	849	890	981	1049	1079	1035	1060	1049	1007
	A.B. degrees conferred	8	6	7	8	14	11	20	23	35	39	26	29	31	39	42
	Ph.B., L.B., S.B., C.E., and M.E. degrees conferred	50	50	78	83	114	109	167	164	208	213	181	207	234	248	206
UNIVERSITY OF PENNSYLVANIA.	Students studying for the degree of A.B.	135	121	105	110	91	109	120	105	89	100	*129	118	155	164	180
	Do. Ph.B., S.B., or Mus. Bac.	224	209	198	170	139	218	293	357	248	282	332	414	352	335	339
	A.B. degrees conferred	28	28	25	34	21	18	22	13	15	22	24	15	17	17	18
	Ph.B., S.B., and Mus. Bac. degrees conferred	26	13	60	60	24	38	27	26	44	60	45	79	59	71	64
COLUMBIA UNIVERSITY.	Students studying for the degree of A.B. in the School of Arts	264	257	247	237	233	237	269	231	246	262	237	224	230	259	300
	Students studying for the degree of M.E., C.E., Ph.B., S.B., or E.E. in the School of Mines	282	263	236	264	228	229	231	242	277	337	324	361	340	365	397
	A.B. degrees conferred on students in various departments	51	59	64	52	49	38	43	50	37	69	65	55	72	78	67
	M.E., C.E., Ph.B., S.B., and E.E. degrees conferred on students in various departments	80	56	37	59	47	52	54	39	45	38	52	65	58	62	60

PRINCETON UNIVERSITY.	Students studying for the degree of A.B.	370	361	342	353	398	422	455	504	559	600	595	558	544	522	553
	Do. E.E., S.B., or C.E.	80	76	76	80	76	92	110	155	223	281	311	331	308	307	306
	A.B. degrees conferred	97	94	95	73	91	79	108	118	126	113	150	149	162	126	120
	E.E., S.B., and C.E. degrees conferred	11	9	8	12	8	17	24	10	22	20	32	55	47	65	69
UNIVERSITY OF WISCONSIN.	Students studying for the degree of A.B.	40	31	28	40	45	56	54	46	49	48	43	42	61	75	76
	Do. L.B., S.B., or Ph.B.	170	158	169	220	266	316	354	390	429	488	539	651	798	850	800
	A.B. degrees conferred	16	8	10	9	6	12	12	11	8	12	12	12	12	13	13
	L.B., S.B., and Ph.B. degrees conferred	46	43	37	47	53	60	70	80	67	117	127	141	140	146	160
UNIVERSITY OF CALIFORNIA.	Students studying for the degree of A.B.	44	44	39	48	48	45	46	50	62	65	80	102	108	138	175
	Do. L.B., S.B., or Ph.B.	116	119	137	168	192	232	249	269	319	373	475	699	848	907	958
	A.B. degrees conferred	2	11	5	9	13	10	7	11	11	10	18	22	18	21	30
	L.B., S.B., and Ph.B. degrees conferred	19	21	13	33	22	22	39	43	48	63	77	87	115	137	161
BROWN UNIVERSITY.	The degrees towards which students are studying are not specified.															
	A.B. degrees conferred	46	47	58	38	33	51	45	49	47	52	63	65	70	88	70
	Ph.B., S.B., C.E., and M.E. degrees conferred	6	11	3	5	5	6	9	15	11	9	20	38	40	52	56
MASSACHUSETTS INSTITUTE OF TECHNOLOGY.	(No course leading to A.B.)															
	Students studying for the degree of S.B.	292	368	415	440	518	589	649	656	704	771	821	830	847	860	857
	Number of S.B. degrees conferred	35	27	59	58	77	75	102	102	132	129	137	143	188	179	197
HARVARD UNIVERSITY.	Students studying for the degree of A.B.	905	936	958	981	997	1035	1127	1198	1287	1449	1494	1499	1611	1594	1650
	Students studying for the degree of S.B.	13	15	10	8	6	6	27	35	48	100	142	204	236	292	319
	Number of A.B. degrees conferred	197	182	222	235	235	212	282	284	293	335	350	360	392	380	391
	Number of S.B. degrees conferred	1	0	2	3	1	1	7	2	7	9	19	23	29	25	29

* From 1893-94, students in the Courses in Arts and Science in the University of Pennsylvania who do not take Latin and Greek through the Freshman and Sophomore years receive the degree of Bachelor of Science.

which has secured this result. It has long been the belief of the President that to maintain the Harvard degree of A.B. in full vigor, it is desirable to broaden the range of well-taught subjects which will admit to Harvard College.

The following table, covering nine years, shows the different modes in which young men accomplish, or nearly accomplish, in three years the work required for the degree of Bachelor of

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Total number receiving A.B. .	282	283	293	332	348	364	396	383	392
1. Graduated in three years .	14	18	18	9	18	17	15	23	17
Of these were credited at admission, 2 or more courses each	2	4	3	3	4	9	5	8	8
Less than 2 courses each .	3	4	5	1	3	3	4	6	2
2. Had leave of absence for Senior Year	2	2	7	15	11	22	26	31	31
Credited with 18.2 courses . . . . .	. .	. .	1	6	8	11	8	13	16
“ “ 17.7 “ . . . . .	. .	1	. .	2	3	2	3	4	4
“ “ 17.2 “ . . . . .	. .	1	1	1	. .	4	4	6	4
“ “ 16.7 “ . . . . .	. .	. .	1	2	. .	5	9	6	7
“ “ 16.2 “	2	. .	4	4	. .	. .	2	2	. .
Of these were credited at admission, 2 or more courses each . . . . .	. .	. .	. .	3	. .	. .	1	1	3
Less than 2 courses each .	. .	1	. .	. .	2	6	6	6	4
3. Registered as Seniors, but credited with 16 courses or more	9	13	30	24	48	49	55	58	54
Credited with 18.2 courses	1	4	3	6	10	8	5	1	12
“ “ 17.7 “ . . . . .	. .	1	1	1	. .	4	2	4	5
“ “ 17.2 “	3	1	7	5	9	11	10	10	12
“ “ 16.7 “	3	. .	4	4	8	6	14	11	9
“ “ 16.2 “	2	7	15	8	21	20	24	32	16
Of these were credited at admission, 2 or more courses each . . . . .	. .	2	. .	1	. .	. .	. .	2	4
Less than 2 courses each .	1	3	3	1	1	2	5	12	11
Number credited in three years with 16 or more courses . . .	25	33	55	48	77	88	96	112	102
Of these with 18 or more courses	15	22	22	21	36	36	28	37	45

Arts. These three-year men are divided in the table into three groups: the first group containing those who actually graduated in three years; the second, those who obtained leave of absence for the Senior year on the ground that they had either completed, or nearly completed, the work for the A.B.; the third, those who registered as Seniors to spend a fourth year in the College, although they were already credited with sixteen courses or more, out of the eighteen courses required for graduation. The table shows the precise number of courses with which each member of each group was credited, and also how many of these course-credits had been obtained at the admission examination. The last two lines in the table show that the number of persons who complete the work for the degree in three years is distinctly increasing,—indeed, that it has doubled within six years; and also that the number of persons who come within two courses or less of completing the work for the degree of A.B. is increasing. To anyone examining these figures for the first time, the query will naturally occur,—why is the third group in this table the largest? why should men who have completed, or very nearly completed, the whole of the work for the A.B. register again as Seniors? For this course of action there are three intelligible motives. First, a young man desires not to graduate a year in advance of most of the friends and contemporaries with whom he entered College. Secondly, a student who needs aid may reasonably suppose that he has a better chance of a scholarship or other money aid, if he registers as a Senior, than he would have if he registered in the Graduate School. Thirdly, a young man who thus registers as a Senior—having nearly finished his work for the A.B.—may take courses acceptable for the A.M., and on completing these satisfactorily during his Senior year may receive, first his A.B. four years from the time he entered College, and then—without further residence—his A.M. five years from the time he entered College. This fifth year he may spend in a professional school, or in business, or in foreign travel or study. One indisputable inference is to be drawn from this table,—namely, that from a third to two-fifths of each College class have no need of more than three years to complete the eighteen courses required for the degree.

Since it is possible to accomplish creditably the regular four years' College work in three years, it must also be possible to do creditably in four years much more than the prescribed amount of work. Accordingly it is common among good students to do much extra work during a residence of four years. Thus, in the class of 1897 there were, among the 143 students who received degrees with distinction, 106 who completed during their residence as undergraduates in Harvard College more than the required number of courses exclusive of extra admission subjects, and in the class of 1898 there were 86 such students. The detailed facts will be found in the Appendix (p. 301). It might be supposed that the men who attempt much extra work do all their work, or much of it, badly; but such is by no means the case. It appears from tables printed in the Appendix (pp. 302-306) that the men in the class of 1897, and the class of 1898, who did most extra work during their residence as undergraduates, did all their work in an admirable manner. These facts are corroborated when the statistics of the extra work done by scholarship holders of the first and second groups in the years 1897-98, and 1898-99 are examined. The facts are presented in tabular form on pages 307, 308 of the Appendix. It appears in these tables that almost all the scholarship holders of the first and second groups do extra work, and that a large proportion of them do a great deal of extra work. Ambitious students, therefore, can either graduate with distinction in three years, or remaining four years in College they can do much work beyond the prescribed amount.

The most important piece of work accomplished by the Faculty of Arts and Sciences during the year under review, was the revision of the requirements for admission to Harvard College and the Lawrence Scientific School. At the end of the year 1896-97, new definitions of the requirements in the several studies in which candidates may present themselves for examination had been adopted by the Faculty; and the new series was published in the summer of 1897. The Faculty had also agreed upon a preliminary statement of the terms of admission to the Lawrence Scientific School, which involved a gradual raising of the admission requirements for that School

to substantial equality with those of the College, although the range of acceptable subjects was larger than in the College. During the first half of the year 1897-98, the Faculty gave a great deal of time to the remaining problem, — namely, the formulation of the terms of admission to Harvard College. This involved settling which of the studies should be prescribed and which should be elective, what restrictions, if any, should be placed on the choice among the elective studies, what relative weight should be assigned to the several studies, and what should be the total amount of the requirements. On the 4th of January, 1898, the Faculty adopted, by a vote of 53 to 12, a scheme in which all these points were determined in a comprehensive measure which was, at least, the result of long discussion and deliberate reflection.

The Dean of the Faculty gives in his report (p. 99) a full and impartial statement of the essential points of difference between the present requirements for admission and those proposed in the Faculty's plan. Although the Faculty declared that it did not intend to increase the total amount of work required in preparation for admission, almost every department represented among the subjects required for admission feels that it has gained something under the new definitions, or under the new method of utilizing for admission the various permitted subjects. Thus, Mathematics gains a better definition of Geometry. Physics escapes from a book alternative in Physics and Astronomy. Latin gains by shifting to a higher level the line between Elementary Latin and Advanced Latin, thus forcing the candidates who do not present Advanced Latin to present more Latin than they did before. All the languages, both Ancient and Modern, gain, in the opinion of their representatives, by the introduction of a more thorough method of testing the candidate's mastery of forms and idioms. In Elementary History the new definition covers much more ground than the old, and a more thorough method of examination is also introduced. In Science four new subjects — namely, Physiography, Astronomy, Meteorology and Anatomy, Physiology and Hygiene — are added to the list of acceptable subjects. How, then, does the Faculty expect that its intention of not raising the total amount of work required for admission can be fulfilled? Its chief reliance is on the fact that the range and freedom of

election open to candidates are materially enlarged in the proposed plan.

The Corporation and Board of Overseers sanctioned the new definitions of requirements, and the proposed gradual raising of the standard of admission to the Lawrence Scientific School; but, by a vote adopted on the fifteenth of June, the Board of Overseers returned to the Faculty its scheme for admission to Harvard College "for further consideration and report, to the end that the preparation in Algebra and History now required of candidates for admission may not be reduced." In the Faculty's scheme both these subjects had been made elective. During the current academic year the Faculty has therefore resumed the discussion of its scheme of January 4th, 1898.

In an excellent table on page 108 of the report of the Dean of Harvard College, and in the comments which follow it, the heavy handicap put upon all candidates for admission to the College who desire to omit Greek is clearly brought out. It there appears that Plan (*c*) requires nominally eighteen hours of examination, but really twenty and a half; Plan (*d*) nineteen hours of examination, but really twenty-one—against sixteen hours in Plan (*a*), strictly eighteen and a half; and seventeen hours in Plan (*b*), strictly nineteen. Under these conditions it is remarkable that Plan (*c*) is utilized as much as it is. Naturally Plan (*d*) has never been much used, since it requires the presentation of at least five advanced studies. It is hoped that the new scheme of requirements for admission, whatever its final form may be, will bring relief from some of these anomalies.

Stimulated by the Board of Overseers, the Faculty is endeavoring gradually to get rid of the prescribed English courses in Harvard College. During the year under review it passed three votes on this subject—the first providing that a candidate for admission who has passed the examination in Elementary English with a grade of *A* or *B* may take a second examination (two hours) which, if passed with a grade of *A* or *B*, shall exempt him from the prescribed Freshman English; the second providing that a student who has obtained grade *A* or *B* in English *A* shall be exempted from the prescription of pre-

scribed Sophomore English; and the third providing that students in prescribed Junior English who have obtained grade *A* or *B* in their work up to the third forensic, may be excused from writing the third forensic. The object of these votes is to relieve from prescribed English all those who do not need it.

In 1897-98, 35 students won a position in the First Group of holders of scholarships, against 23 in 1896-97; and of these 35 men, 16 held John Harvard Scholarships—that is, scholarships without stipend. The list of these scholarship holders (p. 117) is commended to the attention of the Board of Overseers. The principle of awarding scholarships without stipend to those whose rank equals that of the men who receive scholarships with stipend, was extended during the year to the Second Group of holders of scholarships; and the award made at the opening of the current year demonstrated the wisdom of this extension.

In consequence of the great increase in the number of students in Harvard College of late years, some College graduates have feared that the proportion of teachers to students had not been maintained, and that the average age of the College teachers had been reduced by the employment of a large number of young instructors. The following statistics should set at rest both of these apprehensions.

	1869-70.	1896-97.	Ratio.
Number of students under Faculty of Arts and Sciences	612	2417	3.9 fold.
Number of college undergraduate students . .	563	1754	3.1 “
“ members of the Faculty	22	96	4.4 “
“ of whole courses (and half courses reduced to whole courses) attended by college undergraduates	37	209	5.3 “

Average number of years out of college of the members of the Faculty:—

In the year 1869-70	20.8
In the year 1896-97	20.1

Average number of years out of college of the teacher per student-hour of instruction in the years mentioned, or in other words of the teachers giving the instruction received by the several classes of persons named, the unit of the computation

being one hour a week of instruction throughout the year for one student :—

	1869-70.	1896-97.
To College Freshmen	8.6	11.1
“ “ Sophomores	10.4	16.9
“ “ Juniors	15.8	18.4
“ “ Seniors	27.9	19.7
“ all undergraduates	15.6	16.3
“ graduate students		19.6
“ all students		16.6

Average number of years out of college of the teacher per whole course (and half courses reduced to whole courses) :—

In the year 1896-97 17.0

It appears first, that the number of members of the Faculty has increased faster than the number of undergraduates, and secondly, that the average number of years out of college of the members of the Faculty has decreased only seven-tenths of a year between 1869-70 and 1896-97. It also appears that the teachers of Freshmen, Sophomores and Juniors now are men of more maturity than they were in 1869-70, while the teachers of Seniors now are not so long out of college as they were thirty years ago. The fact is that in 1869-70 the teachers of Freshmen were almost all young men, and the teachers of Seniors were almost all elderly men. Finally, the average teacher of a College course is now a man seventeen years out of college, and therefore probably nearly forty years old.

The report of the Dean of the Lawrence Scientific School (p. 120) shows that the School continues to improve its relations to secondary schools, to grow in size, and to procure better and better the regular advancement and graduation of its members. Between 1887 and 1891 the number of Special Students in the School was more than half the total number; but the relative number of Special Students has declined so rapidly since 1891 that it is now less than one sixth of the whole number of the School; and most of the remaining Special Students are desirable members of the School, because they are pursuing selected studies in preparation for special employments.

It is noticeable that some of the very best secondary schools in the country are now regularly sending boys to the Lawrence Scientific School. This was not the case until within recent years. There are thirty-three excellent secondary schools—endowed, public, and private—which are sending pupils regularly to the Scientific School, all but three of them being also regular feeders of Harvard College. These schools are chiefly New England schools of high reputation, but one of the best schools in New York City, and one of the best in Chicago are on the list. The gradual raising of the standard of admission to the School, which has already been decided on, will in all probability confirm and enlarge this relation of the School to good secondary schools, public, endowed, and private.

The status of the Scientific student in Cambridge has completely changed within ten years; he is no longer an outsider, but a comrade and equal of the College student in every respect. He has the same rights in the same buildings and associations, is eligible to the same clubs, teams, and crews, shares with the candidates for the A.B. the delights and charges of Class Day, and graduates on the same day after the same period of residence. In proportion to its numbers, the Scientific School furnishes more members of the principal athletic teams than the College does; and last spring more undergraduates, in proportion to its number of students, enlisted in the army or navy from the Scientific School than from the College.

The Department of Architecture in the Scientific School has now been under way for four years; it has filled out its course of instruction, has taught 105 students, and graduated 11. It already appears that its scheme of studies is very unlike the scheme of every other school of architecture in the country, and strikingly different from that of the neighboring school at the Massachusetts Institute of Technology. These differences were not planned, but have resulted naturally from the university environment of the new department, and from the quality of the students who have presented themselves for instruction. The following table, prepared by Professor Warren, exhibits clearly the well-defined differences in the programmes of seven schools.

PERCENTAGE OF TIME DEVOTED TO CERTAIN GROUPS OF STUDIES IN
THE COURSES ON ARCHITECTURE AT SEVEN INSTITUTIONS.

INSTITUTION.	Date of opening of course.	Year of course.	Mathematics and Construction.	Architectural History.	Architectural Drawing and Design.	Freehand Drawing.	General Studies.
Massachusetts Institute of Technology	1869	I	36.42†	0	26.63	5.62	31.33
		II	23.22	7	20.90	4.65	44.23
		III	23.72	11.22	28.90	4.38	31.78
		IV	8.90	8.04	47.96	14.95	20.15
Cornell University	1870	I	17	0	50	17	16
		II	0	17	50	17	16
		III	25	10	50	0	15
		IV	15	0	50	0	35
Illinois "	1873	I	42	0	8	25	25
		II	42†	0	8†	8	42
		III	10	30	50	0	10
		IV	33	0	56	11	0
Columbia "	1881	I	18	10	35	25	12
		II	10	10	48	20	12
		III	30	9	38	18	5
		IV	*	0	75*	19	6
Syracuse "	1889	I	17	9	36	17	21
		II	17	9	45	17	12
		III	17	5	36	17	25
		IV	15	4	45	18	18
Pennsylvania "	1890	I	18	11	31		40
		II	22	10	22	8	0
		III	20	12	50	18	0
		IV	4	4	79	13	0
Harvard "	1894	I	22	13	40	10	15
		II	20	15	40	15	10
		III	10	15	50	15	10
		IV	0	10	70	10	10

* At Columbia students have the option in the fourth year of specializing in construction or design.

† At Illinois students have the choice between the regular course in architecture and a four-year course in architectural engineering in which there is more mathematics and construction and less drawing and design.

‡ The first year at the Massachusetts Institute of Technology is alike for all students of whatever profession.

For the first four years of its existence the Department of Architecture received generous support from Mr. James A. Garland of New York, who contributed \$3,000 a year for four

years towards the cost of the Department. The Department having now been set firmly on its feet, and Mr. Garland's purpose having thus been accomplished, the Corporation have assumed all the annual charges for salaries and expenses.

The School has gained a new building for the accommodation of its Department of Mining and Metallurgy, — namely, the building formerly known as the Carey Building on Jarvis Field, hereafter to be known as the Rotch Laboratory, in commemoration of the gifts made to the Scientific School by Mrs. Benjamin Smith Rotch and her children.

The Department of Engineering has developed rapidly during the last few years, as is shown in the following table : —

Year.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Number of enrolments in full courses	278	338	574	623	649	763	958
Number of candidates for degrees in Engineering	76	121	134	147	146	161	156

The better accommodation of the numerous students in Engineering is a pressing problem (p. 122).

An important change was made during the year in the programme of the four years' course in General Science — a change which permits students following this course to choose their subjects, after the first year, with the approval of the Division or Department in which they are severally registered. Heretofore all the various courses in the Scientific School which led to a degree have been in the main prescribed, as is necessary whenever a degree having a professional significance is to be given. The change now made in the course in General Science points to the use of that course for purposes of general culture.

The attendance at the summer courses which are given in Cambridge for six weeks beginning July 5th has increased rather rapidly of late years, as appears in the following table : —

Year.	No.	Year.	No.
1889	220	1894	505
1890	279	1895	575
1891	357	1896	617
1892	500	1897	718
1893*	378	1898	759

* Columbian Exposition.

The persons who attend these courses are chiefly teachers in schools and colleges. As a rule they are eager for instruction and prepared to do a large amount of work. They interest and stimulate their instructors, and make surprising progress during their six weeks' residence at the University. The subjects taught in the Summer School were at the beginning (1874) Chemistry and Botany to which Geology was added in 1875; and they were all scientific subjects down to 1891, except that French and German were added in 1888. Since 1890 many new subjects have been added to the list—among them English, Latin, Greek, history, elementary mathematics, psychology, and English literature. In twenty-five years no case of injury to the health of either student or instructor in the Summer School has ever been reported, in spite of occasional hot weather and the temptations to excessive labor which beset the students.

It is an indication of the quality of the students in the Graduate School that no case of discipline has come before the Administrative Board of that School within the last three years (report of the Dean of the Graduate School, p. 125).

The three subjects in the Graduate School which lead numerically are Modern Languages (including English), History and Political Science, and Philosophy;—Classics and Sanskrit taken together making a good fourth. Mathematics, Physics, Chemistry, and Natural History hold subordinate places, but may fairly be classed together; while Music and the Fine Arts, including Architecture, are feebly represented—probably because these departments are unable to offer much advanced instruction.

The proportion of short-residence men in the Graduate School continues to be large. The resort to the School from Canadian universities or colleges is increasing. The quality

of the School as a place for training teachers is clearly brought out in the Dean's report by tracing the present occupations of the 26 Doctors of Philosophy created in June last. Of these men 21 are now teachers — either in colleges or universities (18), or in secondary schools (3). Three others of the 26 are continuing their studies, two of them being holders of Harvard travelling Fellowships. The permanent occupation of two only is as yet uncertain. The degree of Master of Arts is taken by many persons who continue their study; but it is also used as a final degree for men who mean to adopt teaching as their profession. Thus, of the 103 men who received the degree of Master of Arts in June 1898, 32 are already teaching, 10 in colleges and 22 in secondary schools. Some of these persons may, however, rejoin the School later for the purpose of obtaining the degree of Doctor of Philosophy.

The Dean presents a table (p. 139), which shows the age of the Masters of Arts, Masters of Science, and Doctors of Philosophy created in 1898. The figures are formidable. 49 men out of 121 were twenty-eight years of age and over; and more than half the entire number were twenty-seven years of age or over. For such men two-fifths of their seventy years are over before they are able to support themselves.

The competition for the Fellowships and Scholarships in the gift of the Graduate School continues to be amply broad. A little over a quarter of the applicants get appointments of some sort. The Dean presents a very interesting table (p. 148), which indicates the number of degrees conferred in each year since the advanced degrees in arts and sciences were conferred at all, and the total number of each degree conferred; and he accompanies this table with remarks and statistics concerning the distribution by departments, or subjects, of the Doctors of Philosophy and Science, and concerning the subsequent occupation of the persons who have received the Doctor's or Master's degree.

The descriptive catalogue of the Graduate School for the first twenty-five years of its existence (1873-98) was prepared under the direction of the Dean during the year 1897-98, and has since been issued. This catalogue demonstrates that, though the Graduate School has been primarily a place of training for the work of teaching, it has also been used to a

large extent by men who have subsequently entered other professions. Thus, out of 212 Doctors of Philosophy and Doctors of Science, 171 are or have been teachers; but 6 are clergymen; 6 are lawyers; and 16 are men of science who are not also teachers. Again, among 705 A.M.s who are not also Ph.D.s, 316 are teachers: but 72 are lawyers; 61 ministers; 13 physicians; 12 journalists or authors; 7 librarians; 19 scientists; and 28 in business. All the professional Schools of the University, except the Veterinary School, have now issued descriptive catalogues of their graduates. The Law School set the example; the Medical School came next with a catalogue of the members of the Association of Harvard Medical Alumni; and during the year 1897-98 the Scientific School, the Graduate School, the Divinity School, and the Dental School all issued similar catalogues. A descriptive catalogue of the Veterinary School is in preparation. It is unquestionable that catalogues of this sort increase and maintain the interest of the alumni in their respective schools, and also furnish very useful statistical information for those who study the scholarly, political, and social results of improved university organization.

The report of the Dean of the Divinity School (p. 152) brings out strongly the changes which have gradually taken place in the function of the School and in the process of preparing for the ministry. From 1638 to 1814 Harvard College educated a larger proportion of ministers among its graduates than it has ever educated since, but educated them without maintaining any professional school of theology. Candidates for the ministry, after receiving the degree of Bachelor of Arts, remained at the University a few years as resident graduates, or studied with a settled minister. Beginning with 1814, however, the University began to train ministers in a special School; but this School gave no degree until 1870. The degree of Bachelor of Divinity was instituted in Harvard University in 1869, and was first conferred in 1870. In consequence of the great change in the functions of the ministry since the middle of this century, and the large additions made to the list of subjects which a minister is expected to know something about, the training for the minis-

try has become less professionally peculiar, and more like that general cultivation which Masters of Arts and Doctors of Philosophy are expected to attain. The Dean points out (p. 154) the tendency to secularization in the ministerial profession. The churches admit studies of a general nature, such as Philosophy, History, Political Economy, and Literature, as qualifying for their pulpits, instead of special studies, such as New Testament Criticism and Interpretation, Systematic Theology, and Hebrew. These widespread changes may conceivably indicate the approach of an interesting reversion, with modifications, to a state of things that existed at Harvard College till the beginning of the present century.

The Dean's report puts in a strong light the undenominational character of the Divinity School, particularly in the passage about the eighteen holders of the Williams Fellowships. Of the fifteen living pastors of churches who held these Fellowships, only one is a Unitarian. The rest all belong to some one of six Evangelical denominations.

The Dean of the Law School points out (p. 160) how rapidly the conviction is spreading that a faithful student should be able in some way to complete the College course and the Law School course in six years; but he also urges, on good grounds, that College undergraduates who propose to obtain the A.B. degree and the LL.B. degree in six years should complete in the first three years all their work for the A.B. The Dean of Harvard College, from a somewhat different point of view, is also opposed to the transfer of Seniors of the College to the Law School when they have not completed their work for the A.B. (p. 115). There can be no doubt, first, that it would be much better for every student, who proposes to save one year out of the seven (Law or Divinity School) or eight (Medical School) now ordinarily devoted to acquiring the A.B. and a professional degree, absolutely to complete his work for the A.B. in the first three years; and secondly, that any student of moderate capacity can perform this task with perfect safety, and yet obtain high grades in his undergraduate studies. The facts on this latter point have already been given in this report. One obvious explanation of the facts is to be found in the large amount of vacation in the academic year. There are

three months and three weeks of vacation in the academic year. No healthy person needs anything like that amount of vacation in a year. The ambitious student has only to utilize for study three-fourths of his vacations for three years to reduce the four years' college course to three years; and he would still have more than five weeks' complete vacation in every year.

The final table in the Dean's report shows clearly how the representation of Amherst, Bowdoin, Brown, Dartmouth, Princeton, and Yale Colleges in the Law School has risen during the past ten years. For two years past other colleges have together supplied many more students to the Law School than Harvard College has.

The Faculty of the Law School was increased in the spring of 1898 by the addition of two professors—Professor Joseph Doddridge Brannan, A.B. 1869, LL.B. 1892, who is to teach Bills of Exchange, Promissory Notes, and Partnership; and Professor Edward Henry Strobel, A.B. 1877, LL.B. 1882, who is to teach International Law as first Bemis Professor. Professor Brannan comes to the Law School from the active practice of law in Cincinnati; Mr. Strobel from the diplomatic service of the United States, especially in Spain, Equador, and Chili. The favorable condition of the annual budget of the Law School would make it possible to make several further additions to the Faculty of the School.

The Faculty decided last spring to make during the year now current an interesting experiment in teaching a fundamental subject by a Professor and a young Instructor working together. The subject chosen for this experiment was Criminal Law and Procedure. The method is adapted from one used in the College for large courses in History, Economics, Government, and Philosophy.

The report of the Dean of the Medical School demonstrates the increased activity of all the laboratories connected with the School, first in teaching and secondly in research. It results from this increase and from the rapid growth of the School in numbers (30% in four years), that the present building on Boylston Street, although it was erected so lately as 1883, has already become wholly inadequate. It can be somewhat enlarged on the present lot; but it is obvious that the lot

itself is too small to accommodate the School properly for any considerable number of years. A transfer of the School to some part of the city of Boston where land is cheaper and a large lot can be secured, should at once be planned. The present site of the School ought to be owned by the City of Boston, to provide for an extension of the Public Library.

The Medical School has several times of late had small annual deficits, so that its unrestricted balance has shrunk from \$89,061.85 (August 1st, 1893) to \$73,756.32 (August 1st, 1898). During this same period, however, the total endowment of the School has increased by nearly \$185,000.00, an increase which is represented by three new endowments for professorships, — namely, the George Fabyan, the William O. Moseley, and the Henry Willard Williams Funds. A strong effort will soon have to be made to increase the endowment of this department of the University; and, since no department makes quicker, more direct, or more precious returns to the community, it may be hoped that the effort will be promptly successful. The present School should also be crowned by a Graduate Department proper, in which a body of medical experts should be trained for laboratory service rather than for the ordinary practice of medicine. In this Graduate School the great subjects of Comparative Anatomy, Comparative Physiology, and Physiological Chemistry should be strongly represented, as well as Comparative Pathology, the subject which the George Fabyan Professorship has provided for.

The Dental School continues to be that Department of the University which attracts the largest proportion of students from outside the United States. In 1897–98 twelve per cent. of the students came from other countries.

In the spring of 1898 the Faculty, through a committee, organized a body of competent students who, under direction, go to the hospitals and to the homes of the poor for the purpose of giving dental aid to persons unable to visit the Infirmary. The ministrations of these young men give relief from some of the most acute pains that humanity suffers. The work is at present restricted to the hospitals and a small area

of the city. It might be much extended, if the School had the money to meet the inevitable expenses of a larger service.

An excellent Quinquennial Catalogue, giving much information about all the graduates of the School from its beginning, was prepared during the year under review by Dr. Boardman, and was published in a handsome form. The attention of the Overseers is invited to the Dean's statistics (p. 191) of the operations performed in the Infirmary; more than 7,000 patients were treated during the year, most of them being greatly benefited.

The pecuniary condition of this School will be highly satisfactory so long as it is allowed to enjoy without rent the occupation of the larger part of the former Medical School building on North Grove Street. If that free occupation should cease, it would be in immediate need of a new building of its own.

In the year 1896-97 the Veterinary School showed a deficit of \$5,487.34. At the opening of the year 1897-98 a Committee of the Corporation made careful inquiry into possible changes in the Veterinary Department which might prevent the recurrence of large annual deficits. They recommended that one annual appointment in the School be discontinued; that a position made vacant by a resignation should not be filled again; that the salaries in the School be reduced twenty per cent. excepting the salaries of \$100 or lower; that Professor Lyman take charge of the free clinic at Northampton Street with only student assistants; that the amount of service at the Village Street Hospital be reduced; that only one shoeing-forge be maintained, and that at Village Street; and that the plan of annual subscriptions be re-established. These measures could not be put into full effect before the first of December, but having been loyally carried out by the officers in charge of the School and Hospital they resulted in a substantial reduction of the deficit, so that it amounted for the year 1897-98 to only \$1,728.31, while the efficiency of the instruction was not diminished, and the receipts of the Hospital were slightly increased. Unfortunately the receipts of the School proper for the year diminished in consequence of a reduction in the number of students.

When the Veterinary School was established in 1882 there was no well-recognized veterinary hospital in Boston. There are now three, — that of the University, and two private hospitals, both of which are carried on by graduates of the Harvard Veterinary School. Again, when the School was started, there was no endowed veterinary school in the United States. There are now two schools with substantial endowments, — namely, that of Cornell University and that of the University of Pennsylvania. If the Harvard School is to be maintained in a satisfactory manner it must be endowed; for its forms of instruction are necessarily expensive, like those of the ordinary medical school, and it is no more reasonable to expect a veterinary hospital to support a school, than it would be to expect a hospital for human beings to pay the salaries of a large staff of medical teachers. What is needed to put the Veterinary School on an ample scientific footing is the adequate endowment of professorships of Comparative Anatomy and Comparative Physiology, and the provision for these two departments of adequate laboratories, and of a fund the income of which should be applied to the running expenses of these laboratories. To found the two professorships, build the laboratories, and endow the laboratories adequately, would require about \$400,000. The University already possesses a Professorship of Comparative Pathology, and provides a laboratory for this great subject at the Bussey Institution. With these three Professorships the foundations would be laid not only for an adequate school for veterinary practitioners, but also for an Advanced School of Comparative Medicine. This School should be under the direction of a Faculty of Medicine which should also carry on the three Schools which would train medical, dental, and veterinary practitioners.

In October, 1897, the Corporation authorized Instructor Watson to admit women to his course on landscape gardening at the Bussey Institution during the academic year, and this permission was subsequently extended without limit of time. When the Bussey Institution was first opened as a place of instruction, women as well as men were admitted to it; but they had ceased to attend the institution, except in the spring and autumn Arboretum courses given by Mr. Jack. A demand

having arisen for the admission of a few women to Mr. Watson's course on landscape gardening, the Corporation granted the application on the ground that a knowledge of horticulture and landscape architecture might open to women a field in which they could win success.

Dr. Theobald Smith, Professor of Comparative Pathology, has continued to occupy the laboratories assigned him in the second story of the Bussey Building, and one of the large barns and the stable belonging to the estate have been occupied by animals that Professor Smith was studying, or using in the preparation of the diphtheria antitoxin. A large part of the work carried on by Professor Smith at the Bussey Institution is for the State Board of Health. This work requires barns and paddocks, and other facilities not easily to be procured in a compactly built city.

In March, 1898, Mr. William Coolidge Lane, A.B. 1881, was elected Librarian in place of Mr. Winsor, whose death had occurred the previous October. Mr. Lane came to the University Library from the Boston Athenaeum where he had had charge of the library since 1895; he had previously been Assistant in the University Library, in charge of the Catalogue, from 1884 to 1887; and then Assistant Librarian from 1887 to 1895. He was, therefore, intimately acquainted with the Library and particularly with its Catalogue, and he had also seen service as the head of an important library.

The Librarian discusses in his report (p. 202) the difficult question of the proper relations of the general Library to the Departmental, Laboratory, and Class-Room Libraries, sets in a clear light the different functions of these various collections; and points out the various ways in which these smaller libraries relieve the pressure on Gore Hall. At the same time he regards the scattering of these smaller libraries in many separate rooms and buildings as disadvantageous in many respects, and looks forward to the time when rooms for these collections shall be provided in connection with a new reading-room or in a new section of the present building. He estimates that in Gore Hall and the smaller scattered libraries about forty thousand volumes are directly accessible, without any formalities, to members of the University.

Classification of the books on the shelves has gone on rapidly during the year, especially in the scientific departments, in Philosophy and Sociology, in Oriental Philosophy, and in Italian, Spanish and Scandinavian history and literature.

The Library, like the Museum and Observatory, is one of those departments of the University which has no income from students. Being supported wholly by endowments, their incomes fall with the general fall in the rate of interest on investments. The Library has been a severe sufferer in this respect. Its purchases of books are all made from the income of invested funds, and this income has been steadily falling for more than twenty years past. Additional endowment is the only remedy for this evil. Twenty thousand dollars a year is an insufficient sum wherewith to buy the books urgently needed for the College Library, and the Departmental and Class-Room Libraries. Additional book funds to yield an income of \$8,000 to \$10,000 are very desirable. A book fund is certainly a pleasant benefaction to make; for the readers are agreeably reminded of their benefactor by the book-plate which every volume bought with the income of his fund will bear. A book-fund need not be a large fund: a few thousand dollars the income of which is devoted to the purchase of books in a special department may be the means, in the course of years, of providing the general Library with a remarkable collection of books in that department. In all departments of learning, books are the indispensable tools of advanced scholarship. In the selection of the best books to buy, the University has the advice of a large number of competent specialists, namely,—the University teachers. Establishing a book-fund in a University Library is, therefore, a safe and desirable mode of doing some perpetual service to learning.

The most interesting event at the Gray Herbarium during the year was the offer of \$20,000 as an endowment for a memorial professorship, to be called “The Asa Gray Professorship of Systematic Botany”—a chair of research to be united with the position of Curator of the Herbarium. This offer is conditioned upon the securing before Commencement Day, 1899, of \$30,000 more, to be known as “The Asa Gray Memorial Fund,” the income of which is to be used for

salaries and other expenses at the Herbarium. The time within which this second sum must be raised is short; but it may be confidently expected that the memory of the invaluable services of Asa Gray to American Botany will insure the success of the undertaking. The long-continued scientific activity of the Herbarium has been maintained of late years, but only through precarious gifts made for present use. The two funds which it is now proposed to establish would give a measure of security and permanence to the establishment which Dr. Gray founded and inspired.

The Botanic Garden received last summer an admirable gift of a range of greenhouses of the most serviceable construction and very agreeable in design (see the report of the Director, p. 231). The gift is indirectly a fruit of the exhibit made by the University at the Columbian Exposition of Chicago; for the giver was there much interested in the Botanical exhibit of the University. This single gift is in value three-fifths of the total cost of the University's exhibit at the Chicago Fair.

The Garden becomes steadily more and more useful to the students and the public as a place of instruction in Botany. The material it supplies is indispensable to the Botanical courses, both in term-time and vacation. The Museum of Economic Botany becomes more and more ample, and has been steadily improved as regards classification, arrangement, and labelling. The development of the Museum is due, first, to the indefatigable labors of Professor Goodale, and secondly, to the friends who have contributed from year to year the money needed to pay assistants and build cases. Both the Garden and the Museum have suffered a severe loss in the recent death of Colonel Henry Lee, for many years Chairman of the Committee to visit these departments.

The Park Commissioners of the City of Boston having finished building the new road on Peters Hill — the large addition recently made to the territory of the Arnold Arboretum — it will now be possible to begin the systematic planting of that extension. The Arboretum suffers, like all the Departments of the University which have no income from students, from the shrinking of the income on its invested funds; but the gift

of \$2,500 a year for five years from the Trustees of the Massachusetts Society for promoting Agriculture, and the further gift of a permanent fund of \$20,000 received during the year 1897-98 from Miss Abby A. Bradley, in memory of her father, William L. Bradley, have made it possible for the Curator to enlarge somewhat the planting operations at the Arboretum. The splendid work of the Curator entitled, "The Silva of North America," reached during the year its twelfth printed volume.

An unusual number of scientific investigations were carried on during the year in the Chemical Laboratory, all of which are briefly described in the report of the Director (p. 238). The instruction given in Boylston Hall develops from year to year, and has now nearly exhausted the capacity of the building. In the last five years the number of students receiving laboratory instruction has just doubled. If this movement continues, either Boylston Hall must be enlarged, or an additional building erected for the accommodation of the Department. Professor Hill, the Director, has made many valuable improvements in the interior of the building within the last four years; else the capacities of the Laboratory would already have been overtaxed. He has been particularly successful in providing ample ventilation for the laboratories and lecture rooms — a task of no slight difficulty.

Since the lamented death of Professor Josiah P. Cooke in 1894, the Department of Chemistry has been undermanned relatively to the number of its students and to the number of Professors in analogous Departments. It is true that Professor Cooke had charge of the mineral cabinet, and with the aid of an Instructor gave the instruction in Mineralogy; and that this subject with its collections has since his death been transferred to the University Museum and to the charge of another Professor and another Instructor. Still, taking this change into account, the Department of Chemistry proper is entitled to another Professor, or at least to another Assistant Professor.

The comparative neglect of the subject of Physics by the students of Harvard College is a curious phenomenon. Not

only are the advanced courses attended by small numbers of students, which is the case in many other Departments, but the elementary courses do not attract more than one-fifth to one-fourth of the undergraduates of the College and the Scientific School taken together. The most elementary courses in such subjects as History, Government, Economics, and Philosophy are now taken at some period in their undergraduate life by nearly all the students who go through Harvard College. The two elementary courses in Chemistry enrol over four hundred students; but no course in Physics enrolled over 101 students in the year 1897-98. Courses *B*, *C*, and 1, taken together, enrolled only 273 students (see the report of the Director, p. 242); yet the numbers in the courses in Physics were larger this year than they were the year before. One would have supposed that Physics would prove to be the most attractive of all the scientific subjects taught in the University, because of the variety and value of its applications and the intense interest of researches in that subject; but apparently the difficulty of the subject and its strangeness to young men whose education has been almost entirely a training of the memory, deter more men from it than are attracted to it by utilitarian or any other considerations. The result is all the stranger, because there is an active demand for teachers of Physics, as well as for engineers who have received thorough training in the subjects of heat, light, and electricity. During the past year two graduates of the Laboratory obtained full professorships of Physics, and another a valuable position under the American Bell Telephone Company. The Director calls attention to the fact that the endowment of the Physical Laboratory, \$75,000, should be increased because of the continued fall of the rate of interest.

A report on the Psychological Laboratory is included in the President's Report this year for the first time (p. 245). The Laboratory occupies the whole of the upper story of Dane Hall, which is divided into eleven rooms. The equipment of the Laboratory with the expensive instruments required in psychological research was ample at the beginning, thanks to Professor Münsterberg's intelligent care, and remains good, although in the near future additions to the equipment will be indispensable. It is a laboratory at once for elementary instruction and

for research ; and in both directions it is carried on with great activity. The attention of the Overseers is especially invited to the interesting report of Professor Münsterberg, which illustrates in a striking way the revolution which has taken place in modes of teaching and investigating even in the most abstruse subjects.

The resources of the Observatory were increased during the year by two bequests, one of \$20,000 from Charlotte Maria Haven, and one of \$25,000 from Eliza Appleton Haven, both in execution of wishes expressed by their brother, Horace Appleton Haven (A.B. 1842), more than half a century ago. The Appleton-Haven family of Portsmouth, to which these benefactors belonged, has been connected with Harvard College for many generations, and has been in the habit of contributing through this institution to the promotion of learning and the advancement of science.

The Director of the Observatory describes in his report the peculiar organization of the Harvard College Observatory, which has enabled it in recent years to carry on immense astronomical investigations with remarkable continuity, accuracy, and coöperative enthusiasm in scientific productiveness. Only by reading carefully the Director's report can any adequate idea be obtained of the intense activity of the establishment, of the variety of its work, and of the volume of its publications. Ready coöperation with all other observatories and all other astronomers is a characteristic policy of the Observatory. How much forethought is required in even the lesser investigations carried on at the Observatory may be seen in the description the Director gives of the preparations already made for the adequate observation of the shower of meteors which is expected to occur in the year 1899 (p. 257). The report of the Director contains a sentence which shows that the Observatory is not so much occupied with present labors as to be unmindful of the labors of astronomers long since departed : " A complete reduction is also given of the observations of the light of the stars by Sir William Herschel, from which it appears that a century ago he determined the light of nearly three thousand stars with an accuracy closely approaching that of our best modern catalogues."

The Director of the Museum of Comparative Zoölogy presents his last report on retiring from the charge of the Museum, with which he has been connected almost continuously for thirty-nine years. He has the satisfaction of leaving the Museum in thoroughly good condition, whether considered as a place of instruction, or as an Exhibition of natural history objects for the benefit of the visiting public. The shrinking income of the Museum naturally gives him great anxiety, as it does the Faculty of the Museum and the President and Fellows, the inadequacy of the endowment of the Museum having been painfully apparent for years to all who knew that its growth was mainly due to the expenditures which Mr. Agassiz made upon it year by year from his private fortune. Before closing his connection with the Museum, Mr. Agassiz conveyed to the President and Fellows, by a deed which is printed in full in the Appendix (p. 309), all the collections he has brought together on his various expeditions or bought from collectors; all the copies remaining on hand of Volumes IV to XXXII of the Bulletin and Volumes III to XXIII of the Memoirs; all the publications received in exchange for the Bulletin and Memoirs (now about 3,500 volumes in number); and all the books he has bought during the past twenty years (about 5,000 volumes), together with all the microscopes and other apparatus he has at various times placed in the Zoölogical and Geological Departments. In conveying these collections to the President and Fellows, Mr. Agassiz desired to retain such control over them as might be useful to him in preparing for publication in the Bulletin and Memoirs of the Museum the results of the explorations he has already made and hopes to make; and he also desired to continue to use the Museum as the place of labor for himself and his artists and assistants in preparing such reports. The conditions of the deed of gift will be found printed in the Appendix (p. 310). They were gladly accepted by the President and Fellows. This memorandum also indicates the intention of Mr. Agassiz to convey to the Museum all the collections he may hereafter acquire.

On the 25th of June, 1898, the President and Fellows voted to appropriate the sum of \$18,250 from the income of the

year 1897-98 to complete the repayment to the Museum of Comparative Zoölogy of sums expended by the Museum on behalf of the undergraduate department, in accordance with the following vote passed by the Corporation January 27, 1896: —

Voted, That the sum of \$20,000 and interest thereon at the rate of five per cent. a year from August 1, 1889, be repaid to the Museum of Comparative Zoölogy from College income, as soon as practicable, for expenditures made by the Museum on behalf of the undergraduate department; and that the annual appropriation of \$1,500, voted June 26, 1894 (for the same object) be discontinued.

This sum was a large one to take from the income of a single year; but it seemed desirable to complete this repayment within the Treasurership of Mr. Hooper and the Directorship of Mr. Agassiz. \$5,000 had been paid for this purpose out of the income of the year 1895-96, and \$5,000 more from the income of the year 1896-97. The College has had the enjoyment of the rooms provided for its students at the Museum; and it is on all accounts desirable that the College should do everything in its power to relieve the difficulties of the Museum consequent upon the decline in the rate of interest on its funds invested with the general investments of the University.

The report of the Director of the Peabody Museum of American Archaeology and Ethnology (p. 266), shows that the Museum has many active and interested friends; that it promotes with zeal a few anthropological investigations; and that the instruction in Anthropology and Archaeology given at the Museum is gradually developing, and attracting an increasing number of students. The scientific activity of the Museum is only maintained by means of annual gifts made by some of its devoted friends, chief among whom is Mr. Charles P. Bowditch of Boston. The income from the original endowment would hardly be sufficient to keep the Museum alive, and certainly would not permit any work outside of Cambridge.

The Semitic Museum has quite outgrown its present quarters; but, although nearly one-half the sum needed for an appropriate museum building has been pledged, the building cannot

be begun, since the pledges are contingent on the raising of the whole sum needed. In April last, Mr. Jacob H. Schiff, the founder of the Semitic Museum and the Semitic Library, added \$5,000 to his former benefactions for these objects.

The Gray and Randall collections of engravings were both placed, by votes of the Corporation in 1897-98, in the care of the Curator of the Fogg Museum of Art. The Gray collection of engravings has been completely catalogued on sheets which give much information about the engravers, the different states of the prints, and the kind of engraving. This catalogue is accompanied by an alphabetical index, in which the engravers' names are arranged chronologically by countries. In June last the John Witt Randall collection of engravings, which had been bequeathed to Harvard College but temporarily deposited at the Boston Museum of Fine Arts, was transferred to the Fogg Museum by the action of the Trustees of the Boston Museum. This collection has never been catalogued; and, since it contains about 20,000 prints and drawings, it will be a considerable labor to prepare a proper descriptive catalogue like that already made for the Gray collection. This catalogue, like that of the Gray collection, should be accompanied by subject lists and process lists. Since both the Gray and Randall collections are provided with funds for their maintenance, it may be assumed that the labor necessary to make both collections properly accessible to students will be spent upon them as rapidly as the circumstances permit. From the two collections many instructive series of prints of high artistic and historic value can be from time to time selected for exhibition under glass. Some series of this nature is always on exhibition. The catalogue of photographic slides has been completed during the year; but the catalogue of photographs is still incomplete. The resort to the Museum during the day-time has been considerable; but the number of evening visitors having been but small, it has been decided to discontinue the evening opening, which was decidedly expensive.

The Director calls attention to the obvious fact that the Museum ought to be provided with "a limited series of representative original works of the highest character in the

various important branches of art." Thus, for example, there should be in the Museum a few original paintings of the highest class by all the important schools of art in past times. It is hoped that the Museum will be gradually enriched with such objects through the action of graduates and friends of the University, who are interested in the Fine Arts, and desire to promote a knowledge of them among the successive generations of College students.

The Museum received during the year a bequest of \$15,000 from William Mackay Prichard, of Concord, Massachusetts, "the income only of such fund to be used to increase the Fine Arts collection of said College." It was by Mr. Prichard, then a Counsellor at Law in New York City, that the clauses in the will of Mrs. William H. Fogg which provided for the Fogg Museum of Art and the William Hayes Fogg Endowment, were drawn up.

A detailed guide for the use of visitors to the Mineralogical Museum is in preparation, and large plans have been hung on the main floor and in the gallery to give needed information about the arrangement of the collection. Explanatory labels for each case are also to be provided. The Director is of opinion that the instructiveness and interest of a collection of minerals can be greatly enhanced by guiding diagrams, ample descriptive labels, and synoptic displays of selected specimens to illustrate crystallography, the physical characteristics of minerals, and their genesis and mode of occurrence.

All three of the gentlemen belonging to the department of Mineralogy and Petrography prosecuted mineralogical investigations, and two of them brought their work to the stage of publication (p. 284).

The number of students in Radcliffe College during the year was 424, a gain of 54 over the preceding year; and included in this number were 61 graduate students, 40 of whom came from other colleges than Radcliffe. It is obvious that the reputation of the College for good work and especially for good advanced work is improving and extending.

The Dean reports (p. 286) large gifts to the College during the year, — another evidence of the interest and confidence

which the College is inspiring. No progress was made during the year in the settlement of the question whether Radcliffe should give the degree of Doctor of Philosophy. In the judgment of the President of the University, the rank of Radcliffe College will not be satisfactorily fixed and recognized, until it gives its own degree of Doctor of Philosophy with the same endorsement from the President of Harvard University which the Radcliffe A.B and A.M. diplomas uniformly bear.

The number of consultations with the Medical Visitor and his Assistant increases from year to year, while the cases of illness have decidedly diminished in number both in 1896-97 and in 1897-98. The Medical Visitor is inclined to believe that the reduction in the number of cases of reported illness is in part due to the freer and earlier consultation with the Medical Visitor. Tables showing the nature of the diseases which prevailed among the students in each month of the year, and the number of days of illness in each month, are printed in the Appendix (p. 312), together with a table showing the causes of illness and the number of cases in each month of four successive years. There will also be found in the Appendix (p. 315) the Medical Visitation Card, which was sent to all students at the beginning of the year 1897-98. A defect of this system is that there is no provision for emergencies between 5.30 P.M. and 8 A.M. Mumps prevailed in the University to a most unusual extent in the months of March and April, 1898. This was the only disease that exhibited an unusual prevalence.

The University is now provided at the Cambridge Hospital with the means of dealing promptly and effectively with cases of diphtheria and scarlet fever; and examinations for suspected diphtheria can be obtained within twenty-four hours. The laboratory of Physiology and Hygiene is now equipped for the examinations necessary to the diagnosis of typhoid fever, tuberculosis, malaria, and diseases of the kidneys. There still remained unsupplied at the end of the year 1897-98 the great need of an infirmary, where sick students could be comfortably and safely taken care of. This need has been supplied since the opening of the present year by a gift of \$50,000 for this purpose from Mr. James Stillman of New York City.

Quite beyond all provisions for students already sick, lies the pressing need of friendly, judicious health advice for the thousands of young men brought together at the University, many of whom are densely ignorant not only of the manifestations of disease, but of the means of maintaining health and strength. The medical visitation has brought out this fundamental need in a very clear way, but it is not adapted to meet the need completely. No medical visiting which has close connection with the record of absences at the University Offices can completely answer the fundamental hygienic objects.

In consequence of the great increase in the financial business of the Corporation, the appropriations for salaries in that department have necessarily been increased. Two new officers have been appointed — namely, the Comptroller and the Assistant Bursar — and some moderate increases of salary have been made in this department. At the same time, the maximum salary of a full professor has been advanced by five hundred dollars in all departments of the University; so that the maximum salary of a professor in the Law School is now \$5,500, and in the other departments \$5,000. The salary of the President was also raised by one thousand dollars, being the first change made since 1869 in that portion of his salary which is not derived from special funds.

At the instance of the Committee of the Corporation, the Class of 1897 made certain improvements in the Class Day exercises conducted about the old tree standing between Harvard Hall and Holden Chapel; but, although the exercises were made more agreeable and the disposition of the assembly was made much safer, it clearly appeared that the space around that tree was entirely inadequate for the safe accommodation of the thousands of persons who wished to witness the exercises. Accordingly, the Class of 1898, quite of their own accord, transferred the five o'clock exercises of Class Day to the triangle lying west of Memorial Hall, and invented exercises of a new sort. The new area is much larger than the old; and doubtless by condensation and abbreviation the new exercises around the Statue can be made as satisfactory to the assembly as the old exercises were around the tree.

Early in the year the President and Fellows received from "the J. W. and Belinda L. Randall Charities Corporation" "\$70,000 for the erection and equipment of a building for use as a Commons Hall by such students as desire to economize, under such regulations as the President and Fellows shall from time to time determine." The first care of the Corporation was to provide a site for this building. Accordingly the Corporation sold their lot on Holyoke Street in rear of Holyoke House, with certain reservations, and with the proceeds bought the estate on Kirkland Street on the east side of Divinity Avenue. This lot was more than twice as large as the Holyoke Street lot, and had great advantages as regards light and air. The plans for the new dining hall were prepared by Messrs. Wheelwright and Haven; and contracts were made in the spring covering the erection of the building and its equipment. The work was begun in June, and it is hoped that the building will be ready for use by the 1st of July next. It is to be conducted on the general plan of the Foxcroft Club; and on this plan it is supposed that it can accommodate from 1200 to 1500 students. Unless some unexpected difficulties arise, due to the size of the building and the scale of its equipment, the new hall will be a great addition to the facilities that the University provides for students who wish to live frugally.

In the early spring of 1898 the Scheme under which the Dining Hall Association has been carried on in Memorial Hall was revised, and after full consideration and conference between a Committee of the Corporation and the Government of the Hall, a modified Scheme was adopted by the Corporation on the 25th of April. The modified Scheme will be found in the Appendix (p. 315.) The former Scheme, originally adopted in 1874, had been in force with but slight amendments ever since. The new Scheme differs from the old in the manner of choosing the President and Directors, in its description of the duties of the Auditor, and in the amount of the compensation of the Steward. It is noticeable that of the ten Directors six are to be chosen under the new Scheme "at large from Harvard College and the Lawrence Scientific School taken together." This new provision originated with the officers of the Association, and is another indication of the social merging

of these two undergraduate departments which has gradually come about within the past ten years.

The compensation of the Steward under the new Scheme, as under the old, is derived partly from a fixed salary, and partly from head-money, payable each week for every person who boarded that week at the Hall, the head-money diminishing as the price of board rises above \$4. The amount of head-money under the original Scheme, reasonable enough when there were only five hundred students in the Hall, became unnecessarily large when eleven hundred and fifty students were annually admitted to the Association. The new Scheme, therefore, provides for a considerable reduction of the head-money. On the whole the administration of the Dining Hall has been carried on for nearly twenty-five years by the President and Directors in a very serviceable and orderly way, with no need whatever of interference by any Faculty, and with very small cost of time or labor on the part of the Corporation. The Hall has been invaluable to the Cambridge departments of the University; and yet it has cost the University only a moderate amount of clerical labor in the Bursar's office, where the bills of the Hall are paid and its dues collected. The decided success of the student administration of this Hall encouraged the Corporation to undertake the building of the new Randall Dining Hall.

After severe usage for twenty-four years it became necessary to reconstruct the drains and sanitary arrangements in the basement of Memorial Hall. The work was accomplished during the summer vacation of 1898. The cost of these improvements was charged to the Dining Association, to be added, so far as might be necessary, to the advances made by the College and repaid by the Association in annual instalments with interest. The annual instalment is \$1,500 a year, a charge easily borne by an Association which contains at least 1,150 members.

A new Steward, Mr. C. B. Fogler, took charge of Memorial Hall by appointment of the Corporation at the beginning of the year 1897-98, the former Steward, Mr. J. J. Sullivan, having retired at the end of the preceding year. Mr. Sullivan was Steward of Memorial Hall for fourteen years—a long period of service in such a capacity. He conducted the business of the Hall with decided ability, and during his admini-

stration the membership much more than doubled. The Corporation parted from him with regret at the instance of the Board of Directors, as provided in the Scheme of the Hall.

In March, 1898, the Corporation decided to put bath-rooms with hot and cold water in all the chamber buildings in the College Yard, and into College House. This improvement was made necessary by the competition with the College buildings of private chamber buildings and private houses which made ample provision of such facilities for the benefit of their tenants. In order to earn some income on the cost of the improvements, the rents of the rooms in Hollis, Stoughton, Holworthy, Thayer, Weld, Grays, Matthews, and College House were slightly increased; but actual tenants in those halls who reengaged their rooms for the year 1898-99 were not required to pay the increase in price during that year. The rents of rooms in the chamber buildings owned by the College remain much lower than the rents charged for similar accommodations in the private chamber buildings in the vicinity of the College. All the chamber buildings belonging to the University are now provided with ample bathing facilities; for the newer buildings were provided with bath-rooms when they were first erected. There is also a very ample provision of such facilities at the Gymnasium and the Locker Building on the Soldier's Field. The hot water for the bath-rooms in the Yard had to be heated by steam brought from the central plant in University Hall.

While the necessary changes in the steam distribution were being made the Corporation thought it expedient to provide steam heat for both Harvard and Massachusetts Halls, which for many years had been imperfectly heated by hot-air furnaces; at the same time the ventilation of those two buildings was greatly improved. It was especially important to provide good ventilation in Harvard Hall because about one-third of that building is used for departmental reading-rooms which are much used without intermission throughout the day. The ventilation of Gore Hall having long been unsatisfactory, additional ventilating apparatus was put into that building during the summer. The improvements mentioned in this paragraph have cost \$44,295. This is one of those very desir-

able and even necessary expenditures which unfortunately have to be made either from free income or from the principal of unrestricted funds.

In October, 1897, the President and Fellows made an agreement with the Metropolitan Park Commission whereby the Commission acquired over forty acres of the Longfellow marsh and adjacent pieces on the south side of the Charles without making any pecuniary compensation therefor, the University to have the use of somewhat more than a quarter of a mile of the river bank nearest the bridge for its boating purposes, and the territory remaining to the President and Fellows to be suitably fenced by the Commission. This agreement was made in continuation of the established policy of the University to coöperate in every way within their power with the three Commissions engaged in creating parks and parkways for Boston, Cambridge, and the Metropolitan District. The President and Fellows believe that the interests of the University in coming generations will be greatly promoted by the work of these Commissions.

The work of the Metropolitan Park Commission on the south side of the Charles River and west of the Boylston Street bridge is advancing rapidly, and has already caused great improvement along the bank of the river and in the vicinity of the Soldier's Field. The salt water creeks that penetrated the marsh at various points have been filled; the marshes are no longer covered with salt water at unusually high tides, a dike having been completed along the river bank as far as the Abattoir in Brighton; and a large amount of gravel has been placed on the future parkway which follows approximately the curve of the river. The Commission kindly permitted the Committee on the Regulation of Athletic Sports to purchase from their contractor, on favorable terms, gravel for grading certain parts of the College marsh adjacent to the new driveway and to the Soldier's Field.

The takings of the Metropolitan Park Commission, the University grounds on the south side of the Charles, and the large playground on Western Avenue purchased by the City of Boston, make it certain that there are to be in that locality broad, contiguous areas held permanently open; and it is already

evident that the University playgrounds may be made beautiful in themselves and in their surroundings, provided that the hideous wooden banks of seats — which are now supposed to be necessary — can be done away with.

The new Carey Building on the Soldier's Field, replacing the building which bore the same name on Holmes Field, was completed early in the spring of 1898 and was almost immediately utilized, on the breaking out of the war with Spain, for target practice with reduced charges. The inside of the Locker Building was considerably improved during the year.

By vote of September 28th, 1897, a site was assigned for the Phillips Brooks House in the north-western corner of the Yard in a position symmetrical with those of Harvard, Holden, Hollis, and Stoughton; and in the following March the Committee charged with its erection submitted plans and contracts for the House, which the Corporation were glad to approve, the contract price being about \$51,000. The style of the building and its decorative details were determined by those of the contiguous buildings. The architect is Mr. Alexander Wadsworth Longfellow. The building is very carefully constructed in all respects. It will hardly be finished and furnished before the close of the current academic year.

The vestibule of Memorial Hall has been enriched at the north end by a great window in superb colored glass. Mr. Martin Brimmer, shortly before his death in 1896, had commissioned his friend Mrs. Henry Whitman to construct a stained glass window for this conspicuous position. The window was unveiled for Class Day and Commencement, 1898, but was not finished till the following October, the artist having wished to make some changes in it during the summer. It is a costly and splendid window, original in conception, full of various design, and made of glass of precious quality; and it is all the more interesting because the face of one of the principal figures — the warrior's — recalls the lineaments of Martin Brimmer.

At the close of the academic year 1896-97, no conclusion had been reached in the negotiation between the President and Fellows and the Government of the Massachusetts Institute of Technology concerning an alliance between the Institute and

the Lawrence Scientific School. Committees of Conference had been appointed by the two institutions; and at a meeting of the President and Fellows on June 21st, 1897, at the instance of their Conference Committee, it was

Voted, That this Board is willing to modify or limit the present scheme of instruction in technical subjects at Cambridge, if the Corporation of the Institute is willing to consent to some satisfactory plan for the ultimate union of the two institutions.

On the 3rd of January, 1898, after a prolonged interchange of opinions between the two Committees of Conference, the Committee of the Corporation reported the following memorandum of agreement which the two Committees recommended for adoption by the Governing Boards of their respective institutions:—

SECTION I. — Each Corporation shall continue to hold all property which it now applies to the purposes of its own school or schools.

SECTION II. — The income of all funds which either institution may now hold, or hereafter acquire, applicable to the instruction in industrial science, shall be placed at the disposition of the associated school, subject to the terms of the respective gifts.

SECTION III. — It is understood that the branches of industrial science whose teaching is to be relinquished by Harvard University, at some date to be fixed by the University, are those now taught in the departments of Engineering — Civil, Electrical, and Mechanical — Mining and Metallurgy, and Architecture.

SECTION IV. — The Massachusetts Institute of Technology shall be the associated school, and shall be regarded as the only school of industrial science in connection with Harvard University.

SECTION V. — The five Fellows of Harvard College shall be members of the Corporation of the Massachusetts Institute of Technology, and two of them members of its Executive Committee.

Whereupon it was

Voted, That the President and Fellows adopt the memorandum of agreement reported from the Committee of Conference, subject to the interpretation contained in the following vote:

Voted, That the object of the President and Fellows in making this agreement with the Massachusetts Institute of Technology is the ultimate bringing together of the two schools of applied science, each corporation having a due responsibility in the conduct thereof; and that subjects of instruction now dealt with in either the Lawrence Scientific School or the Institute shall be relinquished in favor of the associated

school only so fast and so far as instruction in those subjects shall be made conveniently accessible to students registered in either school.

On the 31st of the same month, the following communication was received from the Committee of Conference on the part of the Institute of Technology : —

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:

GENTLEMEN, — The conditions upon which the Corporation of the College is prepared to accept the agreement drawn by the Conference Committee so modify its tenor that the Representatives of the Institute feel unable to recommend it to their Corporation in the form it has now taken.

Although the result has disappointed our expectations, we still feel convinced that as friends and earnest promoters of Instruction we can so direct the course of our respective institutions that they shall mutually help one another and avoid duplication of work.

It is possible that such a result may be better attained by a friendly interpretation of our common purpose than by any attempt at a formal agreement.

In that hope, we remain

Yours truly,

(Signed)	{	AUGUSTUS LOWELL.
		J. M. CRAFTS.
		GEORGE WIGGLESWORTH.
		HOWARD A. CARSON.
		T. K. LOTHROP.

Boston, January 10, 1898.

Whereupon the President and Fellows voted to send the following communication to the Committee : —

The President and Fellows regret that the alliance with the Massachusetts Institute of Technology proposed by them in a communication dated 12 April 1897 has failed.

The President and Fellows cordially recognize the friendly spirit of the letter of the Committee of Conference of 10 January 1898, and will at any time meet the authorities of the Massachusetts Institute of Technology in consultation for the purpose of avoiding unnecessary duplication of instruction.

It will be observed that the negotiation was closed by the Committee of Conference on the part of the Institute, apparently without procuring any formal action on the subject by the Corporation of the Institute. During the progress of the negotiations both parties became convinced that no substantial

economies would result from the union of the two schools so far as the elementary instruction was concerned. In the general administration and in the advanced instruction given to small classes a saving might undoubtedly have been effected by an intimate union of the two establishments.

The work in the Bursar's Office at Cambridge has increased very much during the last few years, partly because of the increase in the number of students, but also because payments and collections for the Boston departments are now all made at the Bursar's Office in Cambridge. To maintain the full efficiency of the office, and to provide for the inevitable occasional absence of the Bursar, the Corporation appointed in November, 1897, an Assistant Bursar, Mr. William M. McInnes, a graduate of the College (1885) and the Law School.

Mr. Allen Danforth, Bursar from 1874 to 1888, and Deputy Treasurer since 1888, was appointed to the new office of Comptroller on the 29th of November, 1897. It is the chief duty of the Comptroller to gather and arrange information about the property, affairs, and business records of the University, and to report thereon to the Corporation at his discretion. He is also to act on request, as an adviser to the Corporation concerning the plans and sites of new buildings; and he may perform temporarily some of the duties of the Treasurer.

Mr. Danforth has acquired in the course of his twenty-four years of service as a financial agent of the University, an unequalled knowledge of the University real estate—its history, present condition, and past and present profitableness; and he has also a thorough acquaintance with the accounts in both the Treasurer's and the Bursar's Office. He has long been a trusted adviser of the Treasurer and the Corporation in regard to everything relating to the condition, care, and uses of the University property.

On the 14th of November, 1898, the Corporation received from the Comptroller a statement of the results of Mr. Hooper's treasurership from 1876 to 1898—a statement which he had begun to prepare four months earlier, and which had required a revaluation of every piece of property in the possession of the University, both real and personal. The full state-

ment will be found in the Appendix (p. 318). It was entered in full on the records of the Corporation as a striking exhibition of the great service which an alert, skilful, and sagacious Treasurer can render to the University. It appears from this statement that the number of funds and balances in the Treasurer's books increased during the twenty-two years by 243 per cent. ; that the amounts of these funds and balances increased 325 per cent. ; that the total annual income of the University increased 236 per cent. ; that the gain on property bought by Mr. Hooper, partly sold but chiefly held, was a million dollars ; that the surplus of the estimated cash value of the general investments over their book valuation increased between 1876 and 1898 from 5 per cent. to 16 per cent. ; and that the estimated increase, excluding gifts, in the value of the property now belonging to the general investments, was a million and a quarter dollars. The President and Fellows declared, and put on record, their opinion that the University rests under lasting obligations to Mr. Hooper for greatly increasing its property in spite of adverse conditions and troublous times, and for inspiring throughout the community a well-grounded confidence in its financial management—an opinion in which all the alumni and friends of the University heartily unite.

On April 28, 1898, the Treasurer reported to the Corporation that \$750,000 had already been received from the munificent bequest of Henry L. Pierce, of which \$50,000 is restricted as to the principal only, while \$700,000 is wholly unrestricted. The uses to which this unique gift is to be applied had not been determined by the President and Fellows at the end of the academic year. They have felt it necessary to take ample time to consider the most useful and honorable applications of this great addition to the pecuniary resources of the University. The objects should be, first, comprehensively useful ; secondly, permanent ; thirdly, difficult of attainment except through large endowment ; and finally, they should provide for the perpetual commemoration of the enlightened benefactor in agreeable and honorable ways. There is still a considerable sum of money to come to the University from this great estate.

Four new buildings in addition to those already mentioned in this Report are much needed for the Cambridge departments of the University : (1) A building to contain lecture rooms for the use of the language departments, and those of Philosophy, History, and Economics. The increase in the number of students since Sever Hall was built in 1880 is so great, that the present accommodations in the College Yard are entirely inadequate. (2) A building for the Department of Engineering. This Department has grown rapidly during the last eight years, and although it has acquired the Rogers Building (the old gymnasium) and has occupied the whole of Lawrence Hall, its accommodations are still very insufficient. On account of the large amount of drawing which is done by students of this subject, much space is needed for drawing tables ; and the drawing rooms ought to be especially constructed for their purpose, because the requirements as to light and air are peculiar. This building would naturally be placed in the neighborhood of Lawrence Hall and of the Jefferson Physical Laboratory. (3) A building for the Department of Architecture. This growing Department needs a building to contain spacious drawing rooms, a room for its working library, and rooms for its illustrative collections of casts, models, and photographs. It should also contain two lecture rooms, one of which should be equipped for lectures illustrated by the lantern. This building should stand not far from the Fogg Museum because the collections of that Museum are in many respects important to students of Architecture. (4) A dormitory of a new sort intended for students of moderate means who propose to spend only one or two years in Cambridge. These short-residence students have increased rapidly in number during the past fifteen years. They are mainly persons who enter the College with advanced standing, members of the Graduate School, Special Students in the College and Scientific School, and Graduate members of the Divinity School. With the exception of the Special Students, they are apt to be persons who have been already connected with some other college or university. For this class of students a dormitory with furnished rooms of moderate size would be better adapted than any of the dormitories now owned by the University. Such a building would naturally be placed on Jarvis Field. It would

yield a small but secure income at rents lower than the prevailing rates for furnished rooms in private houses. It should have a fire-proof construction, like that of Perkins Hall or Conant Hall; and its internal arrangements should be plain, but convenient and perfectly wholesome. All the chambers should be planned for one occupant only; and they should all be supplied with simple, solid furniture.

The attention of the Overseers is respectfully invited to the following reports by the Deans of the Faculties and Schools and the Directors of the scientific establishments.

CHARLES W. ELIOT, *President.*

CAMBRIDGE, 9 January, 1899

REPORTS OF DEPARTMENTS.

THE FACULTY OF ARTS AND SCIENCES.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — As Dean of the Faculty of Arts and Sciences I have the honor to present the following report for the academic year 1897–98. In preparing this report I labor under the disadvantage of having been absent from the University, and having therefore taken no part in the deliberations of the Faculty, during the whole of the year in question. Under these circumstances it has seemed to me proper to confine myself to a statement of the necessary facts, as they appear on the records, with such explanations as may be required, and to refrain from any attempt to expound or discuss the policy of the Faculty in its action on the various measures which came before it. I may, furthermore, leave such measures as especially concern the several departments under the charge of the Faculty, in the more competent hands of the Deans of those departments, for such report as they may deem fitting. There remain, then, three topics of general interest which properly come within the scope of this report, — instruction, the establishment of the degree of Master of Science, and the revision of the requirements for admission.

Instruction given in 1897–98.

The following list includes all the courses of instruction that were *actually given* under the authority of the Faculty in 1897–98, with the name of the instructor and the number of students of various classes and departments in each course. This list differs from the one published in the Catalogue for 1897–98 in some details, and in omitting such courses as were withdrawn, because not taken by a sufficient number of competent students or for other reasons.

Courses of Instruction are classed as *full courses* or *half-courses*, according to the estimated amount of work in each, and its value in fulfilling the requirements for a degree. Half-courses are designated in the following list by the abbreviation *Hf.* All others are full

courses. The figure 1 or 2, attached like an exponent to the number of a course, indicates that the course was given in the first or in the second half-year. Courses not so designated extended through the year.

The following abbreviations are used to designate the classes of students in the several courses: — Gr. for Graduate Student; Se. for Senior; Ju. for Junior; So. for Sophomore; Fr. for Freshman; Sp. for Special Student of Harvard College; Sc. for Scientific Student; Di. for Divinity Student; Law for Law Student; Me. for Medical Student; Bu. for Bussey Student; R. for Radcliffe Student. The enumeration of students may, in some instances, be incomplete; since it sometimes happens that a student is in regular attendance on a course, without being officially enrolled or otherwise recorded as participating in it.

COURSES OF INSTRUCTION GIVEN IN 1897-98.

Semitic Languages and History.

For Undergraduates and Graduates:—

1. Professor LYON.—Hebrew.—Mitchell's Hebrew Lessons.—Explanation of parts of Genesis and of the Psalm-book. 3 hours.
1 Se., 1 So., 3 Di. Total 5.
6. Professor LYON.—Babylonian-Assyrian History.—Contact of the Babylonians and Assyrians with the peoples of the Mediterranean coasts and islands.—Diffusion of the Babylonian-Assyrian culture through the Phoenicians. *Hf.* 1 hour. 5 Se., 3 Ju., 2 So., 2 Sp. Total 12.
12. Professor LYON.—History of Israel, political and social, till the death of Herod the Great. 2 hours.
23 Se., 13 Ju., 22 So., 1 Sp., 1 Sc., 3 Di. Total 63.
- 16¹. Professor TOY.—History of pre-Christian Hebrew Literature. 4 hours.
1st half-year. 1 Se., 1 Sp., 1 Di. Total 4.
13. Professor TOY.—History of the Hebrew Religion, with comparison of other Semitic religions. 2 hours. 1 Se. Total 1.
15. Professor TOY.—History of the Bagdad Califate.—Mohammedanism in Egypt and India.—Lectures on the Literature.—The Korān. *Hf.* 1 hour. 6 Se., 4 Ju., 6 So., 1 Fr., 1 Di., 1 Me. Total 19.

Primarily for Graduates:—

2. Professor TOY.—Hebrew (second course).—Syntax.—Interpretation of parts of the Prophets and the Poetical Books.—Criticism of selected portions of the text. 2 hours. 1 Se., 1 Sp. Total 2.
- 3². Professor LYON.—Biblical Aramaic.—Kautzsch's *Biblisch-Aramäische Grammatik*.—Interpretation of parts of Ezra, Daniel, and the Targums. *Hf.* 2 hours. 2d half-year. 1 Sp., 1 Di. Total 2.

5. Professor LYON. — Assyrian (second course). — Delitzsch, Assyrian Grammar. — The Chaldean Epic. — Letters and Commercial Documents.
2 hours. 1 Gr., 2 Di. Total 3.

Indo-Iranian Languages.

For Undergraduates and Graduates : —

- 1¹. Professor LANMAN. — Elements of the Sanskrit language. — Easy prose and verse. *Hf.* 3 hours. 1st half-year. 1 Gr., 1 So. Total 2.
- 2¹. Professor LANMAN. — Classical Sanskrit (second year). — Course for rapid reading. — Episodes from the Mahā-Bhārata. — The drama Çakuntalā. — Bhartrihari's Epigrams. *Hf.* 3 hours. 1st half-year. 1 Gr. Total 1.

Primarily for Graduates : —

- 3². Professor LANMAN. — Vedic Sanskrit. — Introduction to the language and literature of the Vedas. *Hf.* 3 hours. 2d half-year. 1 Gr., 1 R. Total 2.

Classical Philology.

Primarily for Undergraduates : —

GREEK.

INTRODUCTORY LECTURES provided for the students in Courses *B* and *C*.

- (1) Dr. BABBITT — Lysias and his Times.
- (2) Professor GOODWIN. — Socrates and Plato.
- (3) Dr. GULICK. — Elegiac, Iambic, and Lyric Poets.
- (4) Professor WHITE. — The Greek Theatre.
- (5) Professor WRIGHT. — Dramatic Performances.

- A.* Dr. F. C. BABBITT. — Homer (Iliad and Odyssey, selections). — Reading at sight. 3 hours. 1 Gr., 3 So., 12 Fr., 3 Sp. Total 19.
- F.* Dr. F. C. BABBITT. — Greek Prose Composition (elementary course). *Hf.* 1½ hours. 2 So., 10 Fr. Total 12.
- B.* Dr. F. C. BABBITT and Dr. GULICK. — Lysias (selections). — Plato (Apology and Crito). — Elegiac, Iambic, and Lyric Poetry (selections). — Euripides (Medea). — Reading at sight. 3 hours. 1 Ju., 3 So., 26 Fr. Total 30.
- C.* Dr. F. C. BABBITT and Dr. GULICK. — Lysias (selections). — Plato (Apology and Euthyphro). — Elegiac, Iambic, and Lyric Poetry (selections). — Euripides (Iphigenia among the Taurians). — Reading at sight. 3 hours. 5 So., 50 Fr. Total 55.
- E.* Dr. GULICK. — Greek Prose Composition (second course). — Goodwin's Moods and Tenses. *Hf.* 1½ hours. 1 Se., 2 So., 15 Fr. Total 18.
2. Dr. GULICK. — Aristophanes (Birds). — Aeschylus (Prometheus Bound). — Thucydides (Book I). — Sophocles (Oedipus Tyrannus). — Collateral reading of the Plutus of Aristophanes. — Reading at sight. 3 hours. 1 Se., 3 Ju., 19 So., 4 Fr., 1 Sp. Total 28.
3. Mr. C. P. PARKER. — Greek Prose Composition (third course). — Translation and original composition (narrative and descriptive). *Hf.* 1 hour. 1 Gr., 1 Se., 3 Ju., 9 So. Total 14.

LATIN.

INTRODUCTORY LECTURES provided for the students in Courses *B*, *C*, and *D*.

- (1, 2) Asst. Professor HOWARD. — Books and Methods of Publication in Ancient Rome. — The Metrical and Musical Element in Roman Comedy.
- (3) Dr. BOTSFORD. — The Roman Historians.
- (4) Asst. Professor MORGAN. — Livy.
- (5) Dr. MANNING. — The Roman Theatre.

A. Mr. BURRAGE. — Cicero (selected speeches). — Virgil. — Practice in reading at sight. 3 hours. 4 Gr., 2 Se., 6 So., 17 Fr., 11 Sp., 2 Sc. Total 42.

F. Dr. MATHER. — Latin Composition (elementary course). *Hf.* 1½ hours.
1 Se., 3 So., 7 Fr., 1 Sp. Total 12.

B. Asst. Professor HOWARD, Dr. MANNING, and Dr. MATHER. — Livy (Books XXI and XXII). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Heautontimorumenos). — Reading at sight. 3 hours. 2 So., 27 Fr., 2 Sp. Total 31.

C. Mr. C. P. PARKER, Dr. MANNING and Dr. MATHER. — Livy (Book I). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Andria). — Reading at sight. 3 hours. 3 So., 83 Fr., 3 Sp. Total 89.

D. Mr. C. P. PARKER and Asst. Professor HOWARD. — Cicero (De Senectute). — Livy (Books I and II or XXI and XXII). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Adelphoe). — Reading at sight. 3 hours. 3 So., 58 Fr., 1 Sp. Total 62.

E. Dr. MANNING. — Latin Composition (second course). — Translation of English narrative. *Hf.* 1½ hours. 2 Se., 2 So., 17 Fr. Total 21.

1. Asst. Professor MORGAN. — Horace (Odes and Epodes). — Tacitus (selections from the Annals). — Reading at sight. 3 hours. 1 Se., 3 Ju., 27 So., 2 Fr. Total 33.

2. Mr. C. P. PARKER. — Tacitus (selections from the Histories). — Horace (Odes and Epodes). — Reading at sight. 3 hours. 1 Gr., 4 Ju., 19 So., 2 Fr., 2 Sp. Total 28.

3. Mr. C. P. PARKER. — Latin Composition (third course). — Extended study of Idiom. — Practice in translation. *Hf.* 1 hour. 2 Gr., 2 Se., 3 Ju., 9 So. Total 16.

For Undergraduates and Graduates: —

GREEK.

6. Professor WRIGHT. — Demosthenes (On the Crown, with parts of the Oration on the Embassy). — Aeschines (Against Ctesiphon). — Aeschylus (Seven against Thebes). — Sophocles (Antigone). — Aristophanes (Frogs). — Collateral reading. 3 hours. 3 Gr., 4 Se., 13 Ju., 1 So. Total 21.

7. Professor WRIGHT. — Greek Prose Composition (fourth course). — Written composition in the style of Demosthenes and of Plato, with studies of classical models. — Translation of selections of standard English (rhetorical and philosophical). *Hf.* 1 hour. 6 Gr., 6 Se., 1 Ju. Total 13.
8. Professor GOODWIN. — Plato (Republic). — Aristotle (Ethics, Books I-IV and X). 3 hours. 6 Gr., 9 Se., 2 Ju., 1 So. Total 18.
- 5¹. Dr. F. C. BABBITT. — The Elements of Modern Greek. *Hf.* 3 hours. 1st half-year. 1 Gr., 1 Se. Total 2.

LATIN.

6. Asst. Professor HOWARD. — Suetonius (selections). — Pliny (selected Letters). — Juvenal (the principal Satires). — Martial (selected Epigrams). 3 hours. 1 Se., 15 Ju., 1 So. Total 17.
- 13². Dr. MANNING. — Catullus and the Elegiac Poets. *Hf.* 3 hours. 2d half-year. 2 Se., 2 Ju., 1 So. Total 5.
7. Professor GREENOUGH. — Practice in Latin expression and style (narrative and descriptive). — Translation into Latin prose. — Original essays in Latin. *Hf.* 1 hour. 4 Gr., 4 Se., 3 Ju. Total 11.
8. Professor GREENOUGH. — Plautus (three plays). — Lucretius. — Horace (Satires and Epistles). 3 hours. 3 Gr., 11 Se., 1 Ju., 1 So. Total 16.
- 14². Mr. W. M. LINDSAY. — Latin Grammar (Sounds and Inflections) treated in connection with Greek Grammar. *Hf.* 3 hours. 2d half-year. 8 Gr., 1 Se., 1 Ju. Total 10.
9. Professor GREENOUGH. — Practice in Latin expression and style (exposition and argument). — Original essays in Latin. *Hf.* 1 hour. 1 Gr., 1 Se. Total 2.
10. Professor GREENOUGH. — The Private Life of the Romans, chiefly as illustrated by works of art. — Lectures, with collateral reading. 3 hours. 10 Gr., 37 Se., 35 Ju., 27 So., 5 Fr., 7 Sp., 24 Se., 2 Me. Total 147.

CLASSICAL PHILOLOGY.

Primarily for Graduates:—

25. Asst. Professor HOWARD. — Introductory Course in the Text-Criticism and Interpretation of Classical Authors: for 1897-98, Suetonius (Nero). *Hf.* 1½ hours. 10 Gr. Total 10.
- 44¹. Professor GOODWIN. — Thucydides. *Hf.* 3 hours. 1st half-year. 9 Gr., 1 Se., 2 R. Total 12.
48. Professor WHITE. — Demosthenes. 2 or 3 hours. 15 Gr., 1 Se., 3 R. Total 19.
- 27². Professor GOODWIN. — The Politics of Aristotle. *Hf.* 3 hours. 2d half-year. 5 Gr. Total 5.
54. Mr. ROPES. — The Acts of the Apostles. 2 hours. 1 Se. Total 1.
- 30². Mr. W. M. LINDSAY. — Plautus, with study of the Captivi. *Hf.* 3 hours. 2d half-year. 4 Gr., 2 Se. Total 6.

- 50². Asst. Professor MORGAN. — Roman Satire from Ennius to Juvenal. — Lectures and special studies. *Hf.* 3 hours. 2d half-year.
6 Gr., 1 Se. Total 7.
- 57¹. Professor GREENOUGH. — Caesar's Gallic War. — Studies in topography and archaeology. *Hf.* 3 hours. 1st half-year. 3 Gr., 1 Se., 2 R. Total 6.
- 28². Professor GREENOUGH. — Latin Grammar (Syntax). *Hf.* 2 or 3 hours. 2d half-year.
6 Gr., 3 Se., 3 R. Total 12.
58. Asst. Professor HOWARD. — Introduction to Latin Palaeography. *Hf.* 1½ hours.
5 Gr. Total 5.
- 39². Mr. C. P. PARKER. — Roman Stoicism in the First Century. — The life and writings of Seneca. *Hf.* 3 hours. 2d half-year. 1 Ju., 2 R. Total 3.
- 59². Dr. GULICK. — The Mythology and Monuments of Ancient Corinth. — Pausanias (Book II). *Hf.* 3 hours. 2d half-year. 1 Gr. Total 1.
37. Professor WHITE. — The Private Life of the Greeks (second course). Investigation of the literary and monumental sources and study of special topics. 2 or 3 hours.
7 Gr., 1 Se., 1 Ju. Total 9.
60. Professor WRIGHT. — Painting in ancient Greece, with especial reference to vase-painting. — Lectures, practical exercises, reports, and theses. *Hf.* 1½ hours.
5 Gr., 1 Me., 2 R. Total 8.
35. Professor WHITE. — Disputed Questions in Athenian Topography. *Hf.* 1 hour.
4 Gr., 1 R. Total 5.

20. THE SEMINARY OF CLASSICAL PHILOLOGY.

Professor WRIGHT and Asst. Professor MORGAN, Directors for 1897-98. — Training in philological criticism and research. — Theocritus (with Herondas) and Horace (Odes). 3 hours. 11 Gr. Total 11.

English.

Primarily for Undergraduates:—

- A. Professors A. S. HILL and BRIGGS, and Messrs. HURLBUT, COPELAND, F. N. ROBINSON, COBB, SCHOFIELD, J. G. HART, LA ROSE, and SHEFFIELD. — Rhetoric and English Composition. — A. S. Hill's Rhetoric (revised and enlarged edition), and part of his Foundations of Rhetoric. — Lectures, recitations, written exercises, and conferences. 3 hours.
381 Fr., 3 So., 63 Sp., 134 Sc. Total 581.
- B. Mr. C. L. YOUNG. — Twelve Themes. — Lectures, and discussions of themes. *Hf.* 2 hours. 7 Ju., 43 So., 7 Fr., 5 Sp., 2 Sc. Total 64.
- C. Asst. Professor BAKER, and Messrs. T. HALL, H. L. PRESCOTT, and HUNTINGTON. — Forensics. — A brief based on a masterpiece of argumentative composition. — Three forensics, preceded by briefs. — Lectures, class-work, and conferences. *Hf.* 2 hours.
1 Gr., 55 Se., 293 Ju., 76 So., 2 Fr., 10 Sp., 9 Sc., 1 Me. Total 447.
- BC. Messrs. HURLBUT, T. HALL, and HUNTINGTON. — English composition. — Written exercises and conferences. *Hf.* 2 hours. 82 Sc. Total 82.

31. Messrs. GARDINER and LA ROSE. — English Composition. 2 hours.
3 Gr., 1 Se., 4 Ju., 49 So., 26 Fr., 12 Sp., 5 Sc., 1 Di., 1 Law. Total 102.
22. Asst. Professor GATES, and Messrs. ABBOTT, J. ALDEN, and H. H. CHAMBERLIN. — English Composition. 2 hours.
1 Se., 1 Ju., 231 So., 24 Fr., 19 Sp., 4 Sc., 1 Di. Total 281.
28. Professors A. S. HILL, BRIGGS, and KITTREDGE, Asst. Professor WENDELL, and Mr. J. G. HART. — English. — History and Development of English Literature in outline. *Hf.* 2 hours. 107 Fr., 17 Sp. Total 124.
30. Asst. Professor BAKER and Mr. HAYES. Forensics and Debating. 3 hours.
2 Gr., 3 Se., 26 Ju., 3 So., 1 Fr., 1 Sc. Total 36.
6. Professors TAUSSIG and HART, Asst. Professors E. CUMMINGS and BAKER, and Mr. HAYES, assisted by Mr. H. L. PRESCOTT. — Oral Discussion of Topics in History and Economics. *Hf.* 2 hours.
3 Gr., 33 Se., 4 Law. Total 40.
10. Mr. HAYES. — Elocution. *Hf.* 2 hours.
1 Gr., 28 Se., 61 Ju., 14 So., 1 Fr., 5 Sp., 3 Sc., 1 Law. Total 114.
31. Dr. F. N. ROBINSON. — Anglo-Saxon. — Bright's Anglo-Saxon Reader. *Hf.* 3 hours. 1st half-year. 12 Gr., 4 Se., 2 Ju., 1 So. Total 19.

For Undergraduates and Graduates: —

1. Drs. GARRETT and F. N. ROBINSON. — English Literature. — Chaucer. 3 hours. 15 Gr., 9 Se., 7 Ju., 2 So., 1 Sp., 1 Sc. Total 35.
2. Professor KITTREDGE. — English Literature. — Shakspeare (six plays). 3 hours. 20 Gr., 31 Se., 28 Ju., 23 So., 6 Sp., 1 Law. Total 109.
- 11¹. Dr. GARRETT. — English Literature. — Bacon. *Hf.* 3 hours. 1st half-year. 1 Gr., 14 Se., 5 Ju., 4 So., 1 Sp. Total 25.
- 11². Dr. GARRETT. — English Literature. — Milton. *Hf.* 3 hours. 2d half-year. 3 Gr., 16 Se., 19 Ju., 24 So., 3 Fr., 3 Sp., 1 Law. Total 69.
- 15². Professor BRIGGS and Mr. C. L. YOUNG. — English Literature. — From the Closing of the Theatres to the Death of Dryden (1642-1700). *Hf.* 2 hours. 2d half-year. 11 Gr., 23 Se., 17 Ju., 26 So., 2 Fr., 9 Sp., 2 Sc. Total 90.
- 8¹. Asst. Professor WENDELL. — English Literature. — From the publication of the Lyrical Ballads to the Death of Scott (1798-1832). *Hf.* 2 hours. 1st half-year. 18 Gr., 113 Se., 125 Ju., 94 So., 5 Fr., 31 Sp., 4 Sc., 1 Law. Total 391.
- 8². Asst. Professor GATES. — English Literature. — From the Death of Scott to the Death of Tennyson (1832-1892). *Hf.* 2 hours. 2d half-year. 21 Gr., 93 Se., 119 Ju., 103 So., 7 Fr., 28 Sp., 5 Sc. Total 376.
12. Professor ARLO BATES (Mass. Inst. of Technology) and Asst. Professor WENDELL. — English Composition. 2 hours.
5 Gr., 11 Se., 15 Ju., 2 So., 6 Sp., 1 Sc., 1 Di. Total 41.

Primarily for Graduates: —

- 19². Professor KITTREDGE. — Historical English Grammar. *Hf.* 3 hours. 2d half-year. 1 Gr. Total 1.

- 3². Dr. GARRETT. — Anglo-Saxon. — Béowulf. *Hf.* 3 hours. 2d half-year.
16 Gr., 1 Se., 1 Ju. Total 18.
- 25². Professor KITTREDGE. — Anglo-Saxon. — Cædmon. — Cynewulf. *Hf.*
2 hours. 2d half-year. 6 Gr. Total 6.
- 26². Dr. GARRETT. — Langland and Gower. *Hf.* 3 hours. 2d half-year.
2 Gr. Total 2.
- 17¹. Mr. FLETCHER. — English Literature of the Fifteenth and Sixteenth Centuries in relation to Italian and Spanish Literature of the Fifteenth and Sixteenth Centuries. *Hf.* 3 hours. 1st half-year.
6 Gr., 2 Se., 1 Ju. Total 9.
- 27¹. Professor KITTREDGE. — The English and Scottish Popular Ballads. *Hf.*
3 hours. 1st half-year. 6 Gr. Total 6.
13. Asst. Professor GATES. — Literary Criticism in England since the Sixteenth Century. *Hf.* 1 hour. 10 Gr., 2 Se., 2 Ju., 1 So. Total 15.
14. Asst. Professor WENDELL. — English Literature. — The Drama from the Miracle Plays to the Closing of the Theatres. *Hf.* 1 hour.
12 Gr., 5 Se., 5 Ju. Total 22.
- 9². Mr. FLETCHER. — English Literature. — Spenser. *Hf.* 3 hours. 2d half-year.
8 Gr., 2 Se., 3 Ju. Total 13.
- 24¹. Professor A. S. HILL. — The Poetry of Wordsworth, Coleridge, Tennyson, and Browning. *Hf.* 2 hours. 1st half-year.
16 Gr., 11 Se., 5 Ju., 1 So. Total 33.
5. Professor A. S. HILL. — English Composition (advanced course). 3 hours.
10 Gr., 8 Se., 1 Ju. Total 19.

COURSES OF RESEARCH.

- 20^b. Mr. FLETCHER. — English Literature in its relation to Italian Literature in the Sixteenth Century. 1 Se. Total 1.
- 20^c. Asst. Professor WENDELL. — Literary History of America. 3 Gr. Total 3.

German.

Primarily for Undergraduates: —

- A. Mr. NICHOLS, Dr. BIERWIRTH, and Messrs. W. G. HOWARD, WALZ, COAR, and BROOKS. — Elementary Course. — Grammar. — Translation from German into English, and elementary exercises in translating into German. 3 hours.
2 Gr., 5 Se., 3 Ju., 16 So., 179 Fr., 19 Sp., 104 Sc., 1 Di. Total 329.
- B. Dr. POLL. — Elementary Course. — Grammar. — Composition. — Translation and reading at sight. — Selections in Prose and Poetry. 5 hours.
1 Ju., 24 Fr., 13 Sp., 2 Di. Total 40.
- C. Messrs. W. G. HOWARD and COAR. — German Prose and Poetry. — Modern Narrative and Historical Prose. — Freytag (Die Journalisten). — Schiller (Wilhelm Tell). — Goethe (Hermann und Dorothea). — Reading at sight. — Grammar and Composition. 3 hours.
2 Ju., 14 So., 67 Fr., 9 Sp., 1 Sc. Total 93.

1a. Messrs. NICHOLS, W. G. HOWARD, and BROOKS. — German Prose and Poetry. — Lessing (Minna von Barnhelm). — Schiller (Die Jungfrau von Orleans). — Goethe (Iphigenie). — Reading at sight. — Grammar and Composition. 3 hours.

1 Gr., 1 Se., 2 Ju., 57 So., 16 Fr., 1 Sp., 3 Sc. Total 81.

1b. Associate Professor BARTLETT. — German Prose. — Subjects in History and Biography. — Reading at sight. 3 hours.

1 Gr., 1 Se., 2 Ju., 9 So., 4 Fr., 2 Sp., 4 Sc. Total 23.

1c. Dr. BIERWIRTH and Mr. WALZ. — German Prose. — Subjects in Natural Science. — Reading at sight. 3 hours.

1 Gr., 2 Se., 4 Ju., 10 So., 2 Fr., 2 Sp., 49 Sc. Total 70.

E. Mr. NICHOLS. — German Grammar and practice in writing German (first course). *Hf.* 1½ hours.

3 Ju., 7 So., 4 Fr., 2 Sp. Total 16.

F. Dr. BIERWIRTH. — German Grammar and practice in writing German (second course). *Hf.* 1½ hours.

1 Gr., 1 Se., 6 Ju., 4 So., 4 Fr., 1 Sp. Total 17.

G. Dr. POLL. — German Grammar and practice in writing German (third course). *Hf.* 1 hour.

3 Se., 5 Ju., 2 So. Total 10.

2a. Associate Professor BARTLETT. — German Literature of the Eighteenth Century. — Selections from the works of Lessing, Goethe, and Schiller. — German Ballads and Lyrics. — Translation. — Reading at sight. — Composition. 3 hours.

1 Gr., 2 Se., 4 Ju., 16 So., 12 Fr., 2 Sp. Total 37.

2. Dr. POLL. — The German Drama of the Classic Period. — Lessing (Minna von Barnhelm, Emilia Galotti, Nathan der Weise). — Schiller (Maria Stuart, Die Jungfrau von Orleans, Wallensteins Tod.) — Goethe (Egmont, Faust.) — Lectures (in German). 3 hours.

3 Se., 14 Ju., 26 So., 15 Fr., 4 Sp. Total 62.

4. Professor FRANCKE. — Goethe and his Time. — Lessing (Emilia Galotti.) — Schiller (Wallenstein). — Goethe (Götz von Berlichingen, Egmont, Iphigenie, Tasso, Dichtung und Wahrheit, Faust). — Lectures (in German). 3 hours.

5 Se., 20 Ju., 25 So., 10 Fr., 3 Sp. Total 63.

6. Mr. NICHOLS. — German Prose (advanced course). — Essayists of the Nineteenth Century, *Hf.* 2 hours.

4 Se., 9 Ju., 5 So. Total 18.

GERMAN LITERATURE.

For Undergraduates and Graduates: —

5. Professor FRANCKE, assisted by Mr. J. F. COAR. — History of German Literature to the Nineteenth Century; with special study of the Classic Periods of the Twelfth and Eighteenth Centuries. — Lectures, reading, and English theses. 3 hours.

6 Gr., 7 Se., 12 Ju., 4 So., 1 Fr. Total 30.

5a². Mr. NICHOLS. — History of German Literature in the Nineteenth Century. — Lectures, with collateral reading. *Hf.* 3 hours. 2d half-year.

2 Gr., 4 Se., 4 Ju., 1 So. Total 11.

8. Asst. Professor VON JAGEMANN. — German Literature in the Twelfth and Thirteenth Centuries. — Nibelungenlied. — Kudrun. — Hartmann (Der arme Heinrich). — Wolfram (Parzival). — Walther von der Vogelweide. — Translation into Modern German. — Lectures and theses. 3 hours.
6 Gr., 5 Se., 1 Ju., 1 So. Total 13.
10. Dr. POLL. — German Literature from the Reformation to the Classic Period of the Eighteenth Century. — Lectures, reading, and theses. *Hf.* 1 hour.
3 Gr., 3 Se., 1 Ju., 1 So., 1 Sp. Total 9.
- 11¹. Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — The brothers Schlegel. — Tieck. — Novalis. — Arnim. *Hf.* 2 hours. 1st half-year.
7 Gr., 7 Se., 1 Ju., 2 So. Total 17.
- 11². Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — Kleist. — Uhland. — Hoffmann. — Heine. *Hf.* 2 hours. 2d half-year.
7 Gr., 6 Se., 1 Ju., 2 So. Total 16.

Germanic Philology.

Primarily for Graduates:—

- 12¹. Asst. Professor VON JAGEMANN. — Gothic. — Introduction to the study of Germanic Philology. *Hf.* 3 hours. 1st half-year.
11 Gr., 1 Se. Total 12.
13. Dr. SCHOFIELD. — Icelandic (Old Norse). — Selections from the Sagas and the Elder Edda. 3 hours.
4 Gr. Total 4.
21. Asst. Professor VON JAGEMANN. — History of the German Language. 3 hours.
5 Gr. Total 5.

SEMINARY COURSES IN GERMANIC LANGUAGES AND LITERATURES.

- 20a. Asst. Professor VON JAGEMANN. — Selected Topics in the History of the German Language. 1 Gr. Total 1.
- 20c. Professor FRANCKE. — Selected Topics in the History of the German Romantic Movement. 6 Gr. Total 6.

French.

Primarily for Undergraduates:—

- A. Messrs. C. H. C. WRIGHT, LA MESLÉE, and HENNING. — Elementary Course. — French Prose. — Composition. 3 hours.
6 Gr., 5 Se., 5 Ju., 3 So., 45 Fr., 19 Sp., 38 Sc., 1 Law, 1 Di. Total 123.
- 1b. Messrs. I. BABBITT and HENNING. — French Prose (historical and general). — Translation from French into English. 3 hours.
6 Ju., 8 So., 35 Fr., 8 Sp., 29 Sc. Total 86.
- 1c. Mr. LA MESLÉE. — Reading, translation, grammar, and composition. 3 hours.
3 Ju., 3 So., 19 Fr., 10 Sp. Total 35.
- 1a. Asst. Professor DE SUMICHRAST, and Mr. LA MESLÉE. — Reading, translation, grammar, and composition. 3 hours.
7 Ju., 21 So., 35 Fr., 7 Sp., 1 Sc. Total 71.

- 2c. Dr. MARCOU and Mr. CESTRE. — French Prose and Poetry. — Corneille. — Racine. — Molière. — Beaumarchais. — Alfred de Musset. — Balzac. — Composition. 3 hours.

1 Gr., 8 Se., 25 Ju., 38 So., 92 Fr., 9 Sp., 2 Sc. Total 175.

- 2a. Messrs. WRIGHT and BABBITT. — French Prose and Poetry. — La Fontaine. — Corneille. — Racine. — Molière. — Victor Hugo. — George Sand. — Taine. — Renan. — Composition. 3 hours.

4 Ju., 29 So., 47 Fr., 3 Sp., 4 Sc. Total 87.

3. Messrs. BRUN and LA MESLÉE. — Practice in speaking and writing French (elementary course). *Hf.* 2 hours.

13 Ju., 33 So., 35 Fr., 8 Sp. Total 89.

4. Mr. BRUN. — Practice in speaking and writing French (intermediate course). *Hf.* 2 hours.

3 Gr., 9 Se., 23 Ju., 29 So., 11 Fr., 3 Sp., 1 Law. Total 79.

5. Mr. BRUN. — Practice in speaking and writing French (advanced course). — Oral discussions. *Hf.* 2 hours.

1 Gr., 1 Se., 7 Ju., 9 So., 2 Fr., 1 Law. Total 21.

For Undergraduates and Graduates: —

- 6c. Professor GRANDGENT. — General view of French Literature. — Reading, recitations, lectures, composition. 3 hours.

2 Gr., 5 Se., 25 Ju., 25 So., 3 Fr., 3 Sp. Total 63.

6. Asst. Professor DE SUMICHRAST. — General view of French Literature. — Lectures, reading, themes, and collateral reading. 3 hours.

2 Gr., 5 Se., 7 Ju., 16 So., 1 Fr. Total 31.

13. Mr. C. H. C. WRIGHT. — The rise and growth of Classicism in French Literature. — Lectures, reading, and theses. 3 hours. 2 Gr., 4 Se. Total 6.

14. Dr. MARCOU. — French Lyric Poetry from Villon and the Fifteenth Century to the present time. — Lectures, reading of texts, and theses. 3 hours.

3 Gr., 2 Se., 4 Ju., 1 So., 1 Sp. Total 11.

- 7¹. Asst. Professor DE SUMICHRAST. — Victor Hugo and the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 2 or 3 hours. 1st half-year.

8 Se., 6 Ju., 1 So., 2 Fr. Total 17.

- 7². Asst. Professor DE SUMICHRAST. — Victor Hugo and the reaction against the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 2 or 3 hours. 2d half-year.

2 Gr., 5 Se., 3 Ju., 1 So., 2 Fr. Total 13.

9. Professor F. BÔCHER. — French Literature in the Seventeenth Century. — Lectures, themes, and collateral reading. 3 hours.

4 Gr., 11 Se., 3 Ju., 4 So. Total 22.

Primarily for Graduates: —

11. Dr. SCHOFIELD. — Old French Literature. — Rapid reading of texts with consideration of their literary relations. 2 or 3 hours. 4 Gr. Total 4.

16. Professor F. BÔCHER. — French Tragedy in the Sixteenth and Seventeenth Centuries. 2 hours.

3 Se., 1 Ju. Total 4.

Italian.*Primarily for Undergraduates : —*

1. Asst. Professor MARSH and Mr. SKINNER. — Elements of Grammar. — Selections from modern authors. — Elementary exercises in writing Italian. 3 hours. 14 Se., 7 Ju., 10 So., 11 Fr., 2 Sp. Total 44.

For Undergraduates and Graduates : —

2. Mr. FLETCHER. — Literature of the Fifteenth and Sixteenth Centuries. — Torquato Tasso. — Ariosto. — Benvenuto Cellini. — Leopardi. — Reading at sight. — Syntax and Prose Composition. 3 hours. 4 Gr., 1 Se., 3 Ju., 1 So., 1 Fr., 2 Sp. Total 12.

Primarily for Graduates : —

4. Professor NORTON. — Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. 2 or 3 hours. 3 Gr., 5 Se., 6 Ju., 2 Me. Total 16.

Spanish.*Primarily for Undergraduates : —*

1. Asst. Professor MARSH and Mr. SKINNER. — Grammar, reading, and composition. — Modern novels and plays. 3 hours. 1 Gr., 12 Se., 14 Ju., 19 So., 18 Fr., 1 Sp. Total 65.

For Undergraduates and Graduates : —

2. Dr. MARCOU. — Literature of the Sixteenth and Seventeenth Centuries. — Cervantes, Lope de Vega, Calderón. — Composition. 3 hours. 2 Gr., 3 Se., 6 Ju., 1 So., 1 Sp. Total 13.

Romance Philology.*Primarily for Graduates : —*

3. Professor GRANDGENT. — Old French. — Phonology and Inflexions. — The oldest texts. — La Chanson de Roland. — Chrétien de Troyes. — Aucassin et Nicolette. 2 or 3 hours. 5 Gr., 3 R. Total 8.
4. Professor GRANDGENT — Provençal. — Language and Literature, with selections from the poetry of the Troubadours. 3 hours. 2 Gr., 1 Se., 1 Ju. Total 4.
- 2^d. Professor GRANDGENT and Asst. Professor VON JAGEMANN. — General Introduction to Linguistic Science. — Phonetics. — Lectures on the Principles of Change in Language. *If*. 3 hours. 2d half-year. 4 Gr. Total 4.

Comparative Literature.*For Undergraduates and Graduates : —*

2. Asst. Professor MARSH. — Mediaeval Literature in the vulgar tongues, with especial reference to the influence of France and Provence. — Lectures and theses. 3 hours. 6 Gr., 3 Se. Total 9.

COURSES OF SPECIAL STUDY IN ROMANCE LANGUAGES AND LITERATURES.

Primarily for Graduates:—

- 20a Professor F. BÔCHER. — The Comedies of Molière and those of his immediate predecessors, his contemporaries, and his immediate successors.
2 hours. 3 Gr., 1 Se. Total 4.
- 20c. Dr. MARCOU. — The syllabic value of contiguous vowels in French verse during the Fourteenth and Fifteenth Centuries. 2 Gr. Total 2.
- 20d. Professor GRANDGENT. — Studies in Old French Literature. 2 Gr. Total 2.
- 20e. Asst. Professor MARSH. — The Origin and Development of Historical Epic Poetry in Mediaeval Europe. 3 hours. 2 Gr. Total 2.

Celtic.

Primarily for Graduates:—

1. Dr. F. N. ROBINSON. — Old and Middle Irish. — Grammar and interpretation of texts. — General introduction to Celtic Philology. — Lectures on the history of Celtic Literature. 3 hours. 2 Gr. Total 2.

Slavic Languages.

For Undergraduates and Graduates:—

1. Mr. WIENER. — Russian. — Grammar, reading, and composition. 3 hours.
1 Gr., 1 Se., 2 Ju. Total 4.
2. Mr. WIENER. — Polish. — Grammar, reading, and composition. 3 hours.
1 Gr. Total 1.

History.

Primarily for Undergraduates:—

1. Dr. COOLIDGE, assisted by Messrs. FAY, ALLEN, and ANDREW. — Mediaeval and Modern European History (introductory course). 3 hours.
2 Ju., 48 So., 328 Fr., 58 Sp., 3 Sc. Total 439.

For Undergraduates and Graduates:—

2. Dr. BOTSFORD. — Political History of Greece to the Roman Conquest.
3 hours. 2 Gr., 6 Se., 4 Ju., 4 So., 4 Fr., 1 Sp. Total 21.
5. Professor EMERTON. — The Mediaeval Church. — Formation of National Churches in the Germanic States. — Establishment of the Mediaeval Papacy and its development as the controlling force in European Life. — The Holy Roman Empire. 2 hours.
3 Gr., 2 Se., 1 Ju., 4 So., 1 Fr. Total 11.
6. Asst. Professor PLATNER. — History of the Early Church, with special reference to the Patristic Literature. 2 hours.
1 Se., 2 So., 5 Di. Total 8.
7. Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent (1350-1563).
2 hours. 6 Gr., 5 Se., 1 Ju., 5 So., 1 Sp., 2 Di. Total 20.
21. Asst. Professor PLATNER. — History of the Church since the Reformation.
2 hours. 2 Gr., 1 Se., 1 Ju., 4 Di. Total 8.
8. Asst. Professor GROSS. — History of France to the reign of Francis I.
2 or 3 hours. 4 Gr., 3 Se., 9 Ju., 4 So., 1 Fr., 1 Sp. Total 22.

9. Asst. Professor GROSS. — Constitutional History of England to the Sixteenth Century. 3 hours.
5 Gr., 22 Se., 16 Ju., 7 So., 3 Sp., 1 Law. Total 54.
11. Professor CHANNING. — History of England during the Tudor and Stuart Periods. 3 hours. 10 Gr., 18 Se., 9 Ju., 5 So., 2 Law. Total 44.
- 12¹. Professor MACVANE. — Constitutional History of England since the reign of George II. *Hf.* 3 hours. 1st half-year.
5 Gr., 24 Se., 28 Ju., 43 So., 3 Fr., 3 Sp., 1 Me. Total 107.
- 12². Professor MACVANE. — History of Continental Europe since the Middle of the Eighteenth Century. *Hf.* 3 hours. 2d half-year.
7 Gr., 22 Se., 47 Ju., 73 So., 8 Fr., 12 Sp., 2 Sc. Total 171.
- 19¹. Dr. COOLIDGE. — The Eastern Question. *Hf.* 3 hours. 1st half-year.
1 Gr., 32 Se., 10 Ju., 1 So., 2 Sp., 2 Law. Total 48.
10. Professor CHANNING, assisted by Mr. BELL. — American History (to 1783). 3 hours. 2 Gr., 20 Se., 33 Ju., 98 So., 8 Fr., 8 Sp. Total 169.
13. Professor HART, assisted by Messrs. LEARNED and WHITE. — Constitutional and Political History of the United States (1783–1865). 3 hours.
5 Gr., 56 Se., 99 Ju., 37 So., 11 Sp., 2 Sc. Total 210.
14. Professor HART. — History of American Diplomacy: Treaties; application of International Law; Foreign Policy. 3 hours.
6 Gr., 8 Se., 1 Ju., 2 So., 1 Sp., 1 Law. Total 19.

Primarily for Graduates: —

18. Dr. BOTSFORD. — Constitutional History of the Roman Republic to the Social War. 2 or 3 hours. 5 Gr., 1 Se., 3 R. Total 9.
22. Asst. Professor GROSS. — The Sources and Literature of English Constitutional History. *Hf.* 1 hour. 1 Gr. Total 1.
- 25². Mr. SULLIVAN. — The Elements of Latin Palaeography, with reference to the use of historical sources. *Hf.* 3 hours. 2d half-year.
3 Gr. Total 3.

SEMINARY COURSES IN HISTORY AND GOVERNMENT.

- 20b. Asst. Professor GROSS. — English Institutions in the Middle Ages.
2 Gr. Total 2.
- 20c. Professor MACVANE. — Recent Constitutional History. 1 hour.
2 Gr., 2 Se., 1 R. Total 5.
- 20d. Dr. COOLIDGE. — Recent Diplomatic History of Europe. 1 Gr. Total 1.
- 20e. Professors CHANNING and HART. — American History and Institutions. 1 hour.
17 Gr. Total 17.

Government.

Primarily for Undergraduates: —

- 1¹. Professor MACVANE, assisted by Mr. SEAMAN. — Constitutional Government (elementary course). *Hf.* 3 hours. 1st half-year.
1 Se., 35 Ju., 111 So., 166 Fr., 38 Sp., 2 Sc. Total 353.

For Undergraduates and Graduates : —

4. Professor MACVANE, assisted by Mr. BIGELOW. — Elements of International Law, and the History of European Diplomacy since the Seven Years' War. 3 hours. 7 Gr., 41 Se., 13 Ju., 1 So., 2 Sp. Total 64.
- 7². Professor MACVANE, assisted by Mr. SEAMAN. — Leading Principles of Constitutional Law : selected cases, American and English. *Hf.* 3 hours. 2d half-year. 1 Gr., 8 Se., 18 Ju., 12 So., 9 Fr., 10 Sp., 2 Law. Total 60.
- 9¹. Mr. SULLIVAN. — Theories of the State in the Middle Ages. *Hf.* 3 hours. 1st half-year. 1 Gr., 1 Se., 1 So. Total 3.

Primarily for Graduates : —

5. Asst. Professor WILLIAMS. — The Roman Law. — Selected Topics. 2 hours. 6 Se., 1 Ju., 1 So. Total 8.
10. Professor MACVANE. — Modern Governments. — Studies in existing Political Systems and in the influence of Political Parties. 2 hours. 8 Gr., 4 Se., 1 Ju., 1 So. Total 12.

ERRATUM.

On page 77, line 14 (Government 10), for "Professor MACVANE"
read "Mr. A. L. LOWELL."

1 Gr., 1 Ju. Total 2.

Economics.

Primarily for Undergraduates : —

1. Professor TAUSSIG, Asst. Professor E. CUMMINGS, Dr. J. CUMMINGS, and Messrs. GRIFFIN, MIXTER, and WARREN. — Outlines of Economics. — Principles of Political Economy. — Lectures on Economic Development, Social Questions, and Financial Legislation. 3 hours. 32 Se., 99 Ju., 199 So., 14 Fr., 29 Sp., 5 Sc., 3 Law. Total 381.

For Undergraduates and Graduates : —

15. Professor ASHLEY. — The History and Literature of Economics to the Middle of the Nineteenth Century. 2 or 3 hours. 3 Gr., 1 Se., 2 So. Total 6.
2. Professor TAUSSIG. — Economic Theory in the Nineteenth Century. 3 hours. 9 Gr., 9 Se., 11 Ju., 3 So. Total 32.
- 13². Professor ASHLEY. — Scope and Method in Economic Theory and Investigation. *Hf.* 3 hours. 2d half-year. 3 Gr., 1 Se., 1 So. Total 5.
3. Asst. Professor E. CUMMINGS. — The Principles of Sociology. — Development of the Modern State, and of its Social Functions. 2 or 3 hours. 4 Gr., 30 Se., 13 Ju., 6 So., 2 Sp., 1 Di., 3 Law. Total 59.
11. Professor ASHLEY. — The Modern Economic History of Europe and America (from 1500). 2 or 3 hours. 5 Gr., 5 Se., 1 Ju., 1 So. Total 16.

6. Dr. CALLENDER. — The Economic History of the United States. 3 hours.
4 Gr., 38 Se., 41 Ju., 8 So., 1 Fr., 2 Sp. Total 94.
14. Asst. Professor E. CUMMINGS. — Communism and Socialism. — History and Literature. 2 or 3 hours. 3 Gr., 5 Se., 2 Ju., 2 So. Total 12.
9. Asst. Professor E. CUMMINGS and Dr. J. CUMMINGS. — The Labor Question in Europe and the United States. — The Social and Economic Condition of Workingmen. 3 hours.
1 Gr., 39 Se., 51 Ju., 12 So., 4 Sp., 1 Sc. Total 108.
4. Dr. J. CUMMINGS. — Statistics. — Applications to Economic and Social Questions. — Studies in the Movement of Population. — Theory and Method. 3 hours. 7 Se., 7 Ju., 3 So., 1 Sp. Total 18.
- 5². Mr. MEYER. — Public Works, Railways, Postal and Telegraph Service, and Monopolized Industries, under Corporate and Public Management. *Hf.* 3 hours. 2d half-year.
31 Se., 16 Ju., 8 So., 7 Sp., 2 Sc., 1 Law. Total 65.
- 16². Professor DUNBAR. — Selected Topics in the Financial History of the United States. *Hf.* 2 hours. 2d half-year.
3 Gr., 3 Se., 2 Ju. Total 8.
- 7¹. Professor TAUSSIG. — The Theory and Methods of Taxation, with special reference to Local Taxation in the United States. *Hf.* 2 or 3 hours. 1st half-year. 5 Gr., 27 Se., 9 Ju., 1 So. Total 42.
- 12¹. Professor DUNBAR. — Banking and the History of the leading Banking Systems. *Hf.* 3 hours. 1st half-year.
5 Gr., 4 Se., 2 Ju., 1 Sp. Total 12.

Primarily for Graduates : —

THE SEMINARY IN ECONOMICS.

20. Professors DUNBAR, TAUSSIG and ASHLEY, and Asst. Professor EDWARD CUMMINGS. — Investigation of topics assigned after consultation.
11 Gr., 1 Se. Total 12.

Philosophy.

Primarily for Undergraduates : —

- 1a. Professors PALMER and MÜNSTERBERG, assisted by Dr. RAND. — General Introduction to Philosophy. — Logic. — Psychology. 3 hours.
1 Gr., 37 Se., 157 Ju., 95 So., 10 Fr., 20 Sp., 12 Sc., 1 Di. Total 333.
- 1b. Professor ROYCE, assisted by Dr. RAND. — Outlines of the History of Philosophy, and Introduction to the Study of the Problems of Philosophical Theory. 3 hours.
1 Gr., 21 Se., 38 Ju., 20 So., 3 Fr., 10 Sp., 1 Di. Total 94.

For Undergraduates and Graduates : —

- 2¹. Professor MÜNSTERBERG. — Advanced Psychology. — Lectures, prescribed readings, and a thesis. *Hf.* 3 hours. 1st half-year.
12 Gr., 9 Se., 10 Ju., 1 Sp. Total 32.

- 14¹. PROFESSOR MÜNSTERBERG. — Experimental Psychology (elementary laboratory course). — The psychology of sensation and of the elementary mental processes. *Hf.* 2 hours and laboratory work. 1st half-year.
8 Gr., 4 Se., 1 Ju., 1 So., 1 Fr., 2 Sp., 1 Sc., 1 Di. Total 19.
- 14². MR. LOUGH. — Experimental Psychology (advanced course). — Systematic exercises in the technique and use of instruments employed in research work. *Hf.* 1 hour and laboratory work. 2d half-year.
7 Gr., 1 Se., 2 Ju., 1 Fr., 1 Sp., 1 Sc. Total 13.
3. PROFESSOR JAMES. — The Philosophy of Nature, with especial reference to Man's place in Nature. — Lectures and theses. 3 hours.
9 Gr., 10 Se., 12 Ju., 2 Sp., 1 Di. Total 34.
4. PROFESSOR PALMER. — Ethics. — The Theory of Morals, considered constructively. — Lectures, theses, and private reading. 3 hours.
4 Gr., 25 Se., 14 Ju., 2 So., 1 Fr., 4 Sp., 3 Di. Total 53.
5. PROFESSOR PEARODY, assisted by DR. RAND. — The Ethics of the Social Questions. — The problems of Poor-Relief, the Family, Temperance, and various phases of the Labor Question in the light of ethical theory. — Lectures, special researches, and prescribed reading. 3 hours.
5 Gr., 65 Se., 19 Ju., 9 So., 1 Fr., 1 Sp., 10 Di., 1 Law. Total 111.
6. PROFESSOR EVERETT. — The Psychological Elements of Religious Faith. — Lectures. *Hf.* 1 hour. 6 Gr., 6 Se., 4 Ju., 3 Sp., 13 Di. Total 32.
7. PROFESSOR EVERETT. — Theism and the Special Contents of Christian Faith. — Lectures and a thesis. 3 hours. 1 Gr., 2 Se., 12 Di. Total 15.
9. PROFESSOR ROYCE. — Metaphysics. — The fundamental problems of Theoretical Philosophy, considered constructively. — The Definitions of Reality. — The Problem of Knowledge. — Realism and Idealism. — The Problems of Nature, Freedom, Teleology, and Theism. — Theses. 3 hours. 5 Gr., 5 Se., 5 Ju., 1 So., 3 Di. Total 19.
12. DR. SANTAYANA. — Greek Philosophy, with especial reference to Plato. — Lectures, theses, and private reading. 3 hours.
2 Gr., 2 Se., 7 Ju. Total 11.
- 11¹. DR. SANTAYANA. — Descartes, Spinoza, and Leibnitz. — Lectures, recitations, and prescribed reading. *Hf.* 3 hours. 1st half-year.
4 Gr., 7 Se., 3 Ju., 1 So., 1 Fr., 1 Sp. Total 17.
- 11². DR. SANTAYANA. — The History of English Philosophy from Locke to Hume. — Lectures, prescribed reading, and theses. *Hf.* 3 hours. 2d half-year.
7 Gr., 10 Se., 14 Ju., 3 So., 2 Fr., 3 Sp., 1 Di., 1 Law. Total 41.
13. PROFESSOR EVERETT. — The Comparative Study of Religion. — Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. *Hf.* 2 hours. 7 Gr., 7 Se., 4 Ju., 1 Sp., 9 Di. Total 28.
- 8¹. PROFESSOR JAMES. — The Philosophy of Kant. — Special reports and lectures. *Hf.* 3 hours. 1st half-year.
2 Gr., 2 Se., 1 Sp., 1 Di. Total 6.

Primarily for Graduates : —

- 20a. Professor MÜNSTERBERG and Mr. LOUGH. — Psychological Laboratory. — Experimental investigations by advanced students. 10 Gr., 2 R. Total 12.
- 20b. Professor JAMES. — Psychological Seminary. — Subject for the year: The Philosophical Problems of Psychology. 2 hours.
10 Gr., 2 Di., 2 R. Total 14.
- 20c. Professor ROYCE. — Metaphysical Seminary. — Subject for the year: The Development of the Hegelian System. 2 hours.
7 Gr., 3 Di., 2 R. Total 12.
- 20d. Professor PALMER. — Ethical Seminary. — Subject for the year: The Historical Development of Ethical Thought in England. 2 hours.
7 Gr., 3 Di., 1 Me., 1 R. Total 12.
- 20e. Professor PEABODY. — Sociological Seminary. — Subject for the year: The Christian Doctrine of the Social Order. 2 hours.
4 Gr., 6 Di. Total 10.

COURSES IN EDUCATION AND TEACHING.

For Undergraduates and Graduates : —

16. Mr. LOCKE. — The History of Educational Theories and Practices. — Lectures, discussions, and reports. — Two essays. 2 hours.
4 Gr., 5 Se., 1 So., 3 Sc. Total 13.
18. Mr. LOCKE. — Introduction to Educational Theory. — Discussion of Educational Principles. — Lectures, reports, and discussions. — One essay. *Hf.* 1 hour.
4 Gr., 13 Se., 5 Ju., 2 Sc. Total 24.
- 19a. Asst. Professor HANUS and Mr. LOCKE. — Methods of Teaching Mathematics, Physics, Chemistry, Physiography and Meteorology, Botany and Zoölogy, Physiology, in Elementary and Secondary Schools. About ten exercises in each subject. One thesis on the work of the whole course. *Hf.* 2 hours.
3 Gr., 2 Se., 1 Sc., 3 R. Total 9.

Primarily for Graduates : —

17. Mr. DUTTON and Dr. HULING. — Organization and Management of Public Schools and Academies. — Supervision, Courses of Study, and Instruction. — Lectures, discussions, and reports. 2 hours.
15 Gr., 2 Se., 1 So., 1 Fr., 2 Sc., 9 R. Total 30.

The Fine Arts.

Primarily for Undergraduates : —

1. Professor MOORE, assisted by Mr. MOWER. — Principles of Delineation, Color, and Chiaroscuro, with some considerations of historic forms of art, and the conditions which have influenced them. — Lectures (once a week), with collateral reading. — Practice in drawing and in the use of water-colors. — Perspective. 3 hours.
6 Se., 2 Ju., 14 So., 16 Fr., 2 Sp., 34 Sc. Total 74.
2. Professor MOORE. — Principles of Design in Painting, Sculpture, and Architecture, as exemplified in the arts of past ages. — Lectures (twice a week), with collateral reading. — Practice in drawing. 3 hours.
1 Sc., 2 Ju., 2 So., 2 Sc. Total 7.

For Undergraduates and Graduates:—

3. Professor NORTON. — Ancient Art. 3 hours.

5 Gr., 111 Se., 153 Ju., 124 So., 16 Fr., 14 Sp., 27 Sc., 1 Me. Total 451.

Architecture.

The courses in Architecture are intended primarily for students in the Lawrence Scientific School, and only Course 1a may be counted towards the degree of A.B.

1a. Asst. Professor WARREN. — Technical and Historical Development of the Ancient Styles, with especial reference to Classic Architecture. Lectures and practice in the drawing room. 2 or 3 hours.

1 Gr., 1 Se., 2 Ju., 2 So., 19 Sc. Total 25.

1c. Asst. Professor WARREN. — Technical and Historical Development of Renaissance and Modern Architecture. 2 or 3 hours.

1 Gr., 3 Se., 2 Ju., 1 So., 25 Sc. Total 32.

2a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Elementary Architectural Drawing. 3 hours. 1 Gr., 13 Sc. Total 14.

3a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects. 6 hours.

1 Ju., 11 Sc. Total 12.

3b. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects (second course). 6 hours.

8 Sc. Total 8.

3c¹. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects (third course). *Hf.* 6 hours.

1st half-year. 13 Sc. Total 13.

4a. Asst. Professor WARREN and Mr. NEWTON. — Elementary Architectural Design. Lectures and practice. 4 hours. 1 Ju., 10 Sc. Total 11.

4b. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Architectural Design (second course). 4 hours. 10 Sc. Total 10.

4c. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (advanced course). 11 Sc. Total 11.

5¹. Mr. NEWTON. — Building Construction: Carpentry. — Lectures and drawing. *Hf.* 2 hours. 1st half-year. 15 Sc. Total 15.

6. Mr. GARBUTT. — Modelling. — Practice in modelling architectural ornament in clay. *Hf.* 3 hours. 1 Sp., 10 Sc. Total 11.

Music.

For Undergraduates and Graduates:—

1. Mr. SPALDING. — Harmony. 2½ hours.

2 Se., 3 Ju., 11 So., 11 Fr. Total 27.

2. Mr. SPALDING. — Counterpoint. 2 hours. 2 Ju., 6 So., 1 Sp. Total 9.

3. Professor PAINE.—History of Music, with analysis of the works of the great masters. *Hf.* 1 or 2 hours. 4 Se., 4 Ju. Total 8.
8. Professor PAINE.—Chamber Music of Beethoven and other masters, with analysis of their principal works.—Lectures.—Ten illustrative concerts. 2 hours. 12 Se., 6 Ju., 4 So., 1 Fr., 1 Sp. Total 24.

Primarily for Graduates:—

5. Professor PAINE.—Canon and Fugue.—Free Thematic Music. 2 hours. 1 Se., 1 Ju., 1 So. Total 3.
6. Professor PAINE.—Advanced Canon and Fugue and Free Composition. 2 hours. 1 Gr., 3 Se. Total 4.

Mathematics.

Primarily for Undergraduates:—

- A¹. Dr. SAFFORD.—Logarithms.—Plane and Spherical Trigonometry. *Hf.* 3 hours. 1st half-year. 2 Se., 3 Ju., 9 So., 25 Fr., 7 Sp., 3 Sc. Total 49.
- B². Dr. SAFFORD.—Plane Analytic Geometry (elementary course). *Hf.* 3 hours. 2d half-year. 1 Se., 2 Ju., 2 So., 22 Fr., 2 Sp., 8 Sc. Total 37.
- C. Mr. ASHTON.—Plane and Solid Analytic Geometry (extended course). 3 hours. 4 So., 5 Fr., 2 Sp., 2 Sc. Total 13.
- D¹. Dr. SAFFORD.—Algebra. *Hf.* 3 hours. 1st half-year. 2 Ju., 6 So., 23 Fr., 6 Sp., 3 Sc. Total 40.
- E². Dr. SAFFORD.—Solid Geometry. *Hf.* 3 hours. 2d half-year. 1 Se., 3 Ju., 13 So., 44 Fr., 9 Sp., 26 Sc., 1 Law. Total 97.
- F. Mr. ASHTON and Dr. SAFFORD.—Trigonometry and Plane Analytic Geometry. 3 hours. 2 Ju., 7 So., 33 Fr., 3 Sp., 1 Sc. Total 46.
2. Professor BYERLY, assisted by Mr. ASHTON.—Differential and Integral Calculus (first course). 3 hours. 9 Ju., 21 So., 3 Fr., 3 Sp., 4 Sc. Total 40.
4. Asst. Professor OSGOOD.—The Elements of Mechanics. 3 hours. 1 Gr., 3 Se., 7 Ju., 1 So., 1 Sc. Total 13.

For Undergraduates and Graduates:—

- 1¹. Asst. Professor M. BÔCHER.—Theory of Equations.—Invariants. *Hf.* 3 hours. 1st half-year. 4 Gr., 1 Se., 3 Ju., 1 So., 1 Sc. Total 10.
3. Professor BYERLY.—Modern Methods in Geometry.—Determinants. 3 hours. 2 Gr., 4 Se., 1 Ju., 2 So., 1 Sp. Total 10.
5. Asst. Professor OSGOOD.—Differential and Integral Calculus (second course). 3 hours. 4 Gr., 2 Se., 11 Ju., 1 So. Total 18.
6. Professor J. M. PEIRCE.—Quaternions, with applications to Geometry and Mechanics (first course). 3 hours. 5 Gr., 3 Se., 4 Ju., 1 So., 1 Sc. Total 14.
- 12¹. Asst. Professor OSGOOD.—Infinite Series and Products. *Hf.* 3 hours. 1st half-year. 3 Gr. Total 3.

Primarily for Graduates:—

- 7b. Professor J. M. PEIRCE. — Theory of Curves and Surfaces (second course):
General Theory of Surfaces; Surfaces of the First and Second Degrees.
3 hours. 1 So. Total 1.
10. Professors BYERLY and B. O. PEIRCE. — Trigonometric Series. — Introduction to Spherical Harmonics. — Potential Function. 3 hours.
9 Gr., 2 Se. Total 11.
13. Asst. Professor M. BÔCHER. — The Theory of Functions (introductory course). 3 hours. 3 Gr., 2 Se., 1 So. Total 6.
11. Professor B. O. PEIRCE. — Hydrostatics. — Hydrokinematics. — Force Functions and Velocity-Potential Functions and their uses. 2 or 3 hours.
10 Gr., 1 Se. Total 11.
- 17². Asst. Professor OSGOOD. — The Theory of Functions (second course). — Elliptic Integrals and Elliptic Functions. *Hf.* 3 hours. 2½ half-year.
3 Gr. Total 3.
19. Asst. Professor M. BÔCHER. — Functions defined by Linear Differential Equations. 3 hours. 4 Gr. Total 4.
25. Professor ASAPH HALL (U. S. Navy). — The Theory of Planetary Motions. 3 hours. 1 Gr., 1 Se. Total 2.

Astronomy.*Primarily for Undergraduates:—*

- 1¹. Dr. WILLSON and Mr. REED. — Descriptive Astronomy. *Hf.* 3 hours. 1st half-year.
42 Se., 13 Ju., 15 So., 2 Fr., 2 Sp., 4 Sc., 1 Law, 1 Me. Total 80.

For Undergraduates and Graduates:—

3. Dr. WILLSON. — Practical Astronomy. — Portable and fixed instruments. — Time and longitude by transit. — Latitude by zenith telescope. — Meridian circle; equatorial instrument. — Lectures, use of instruments, and computation. 3 hours. 4 Gr., 3 Ju., 1 So. Total 8.

Engineering.

The courses in Engineering are intended primarily for students in the Lawrence Scientific School, and only a few of them can ordinarily be counted towards the degree of A.B. The Catalogue shows in detail what courses may be so counted.

- 1a¹. Messrs. LOVE, ASHTON, SAFFORD, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Algebra. *Hf.* 3 hours. 1st half-year.
1 Ju., 3 So., 10 Fr., 110 Sc. Total 124.
- 1b¹. Messrs. LOVE, ASHTON, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Trigonometry. *Hf.* 2 hours. 1st half-year.
2 Ju., 1 So., 1 Fr., 105 Sc. Total 109.
- 1d². Messrs. LOVE, ASHTON, SAFFORD, and FRIZELL. — Engineering Mathematics. — Analytic Geometry. *Hf.* 3 hours. 2½ half-year.
3 So., 2 Fr., 90 Sc. Total 95.

- 1c. MESSRS. LOVE, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Solid Analytic Geometry. — Differential and Integral Calculus. 2 or 3 hours. 2 Ju., 1 So., 61 Sc. Total 64.
- 1f¹. Mr. LOVE. — Engineering Mathematics. — Differential and Integral Calculus (second course). *Hf.* 3 hours. 1st half-year. 10 Sc. Total 10.
- 3a. MESSRS. MOSES, OSBORN, and M. H. WRIGHT. — Mechanical Drawing. — Use of Instruments. — Projections and Machine Drawing. — Lectures (1 hour) and draughting (6 hours). 4 Ju., 4 So., 8 Fr., 74 Sc. Total 90.
- 3b¹. MESSRS. MOSES and OSBORN. — Descriptive Geometry. — Elementary Shades, Shadows, and Perspective. — Lectures (1 hour) and draughting (6 hours). *Hf.* 1st half-year. 1 Ju., 9 Sc. Total 13.
- 3c¹. Mr. MOSES. — Structural and Machine Drawing. — Applications of Descriptive Geometry to Engineering Constructions and Machinery. — Lectures (1 hour) and draughting (6 hours). *Hf.* 1st half-year. 1 Ju., 3 So., 49 Sc. Total 53.
- 3d². Mr. MOSES. — Mechanism. — Study of gearing and mechanical movements. — Lectures (2 hours) and draughting (4 hours). *Hf.* 2d half-year. 2 So., 36 Sc. Total 38.
- 3e². MESSRS. MOSES and OSBORN. — Stereotomy, Shades, Shadows, and Perspective. — Lectures (1 hour) and draughting (6 hours). *Hf.* 2d half-year. 1 So., 11 Sc. Total 12.
- 4a. MESSRS. TURNER and BUTLER. — Surveying, Plotting, and Topographical Drawing. — Levelling. — Field practice. 6 hours. 3 Ju., 1 So., 31 Sc. Total 35.
- 4c². MESSRS. TURNER and BUTLER, and Dr. WILLSON. — Geodetic and Mining Surveying. — The use of astronomical instruments in Surveying and Navigation. *Hf.* 6 or 7 hours. 2d half-year. 7 Sc. Total 7.
- 4d¹. MESSRS. TURNER and BUTLER. — Railroad Engineering. — Survey, Location, and Construction of Railroads. — Field practice. *Hf.* 6 hours. 1st half-year. 9 Sc. Total 9.
- 10a. Mr. BURKE. — Shopwork in Metals. — Use of tools. — Fitting by hand. — Study of the metals in practical working. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 31 Sc. Total 31.
- 10b. Mr. BURKE. — Blacksmithing. — Use of tools. — Forging, welding, tool dressing and tempering. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 28 Sc. Total 28.
- 10c. Mr. BURKE. — Shopwork in Wood. — Use of tools. — Pattern-making and turning. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 1 So., 38 Sc. Total 39.
- 10e. Mr. BURKE. — Machine Shop Practice. — Use of machine tools. — Construction of parts of machinery; finishing and assembling parts. — Lectures and laboratory work. *Hf.* 6 to 9 hours. 1st or 2d half-year. 1 So., 38 Sc. Total 39.

For Undergraduates and Graduates :—

- 4e². Mr. McCLINTOCK.—Construction and Maintenance of Common Roads.
Hf. 3 hours. 2d half-year. 3 Gr., 8 Sc. Total 11.
- 5a. Professor HOLLIS and Mr. PEUGNET.—Analytic and Applied Mechanics.
 —Problems in Statics and Kinetics. 3 hours.
 1 Gr., 1 Se., 30 Sc. Total 32
- 5b. Asst. Professor JOHNSON.—Elementary Statics.—Graphical and Analytical
 Methods.—Designing of simple structures. *Hf.* 3 hours.
 8 Sc. Total 8.
- 5c¹. Professor HOLLIS.—Resistance of Materials. *Hf.* 3 hours. 1st half-
 year. 2 Gr., 1 Se., 11 Sc. Total 14.
- 6a². Messrs. TURNER and BUTLER.—Hydraulics and Hydraulic Motors.—
 Flow of water in pipes.—Water wheels, turbines, and pressure engines.
Hf. 3 hours. 2d half-year. 1 Gr., 1 Se., 26 Sc. Total 28.
- 6c². Mr. RICE.—Water Supply and Sanitary Engineering. *Hf.* 3 hours.
 2d half-year. 13 Sc. Total 13.
- 6d¹. Mr. TURNER.—Canals, Rivers, and Irrigation.—Measurements of the
 flow of water.—Construction of irrigation works. *Hf.* 3 hours. 1st
 half-year. 9 Sc. Total 9.
- 7a. Asst. Professor JOHNSON.—Bridges and Buildings.—Graphical Statics.—
 Details of iron and steel construction.—Lectures and draughting. 9 hours.
 1 Gr., 7 Sc. Total 8.
- 8a². Asst. Professor JOHNSON.—Masonry and Foundations. *Hf.* 3 hours.
 2d half-year. 1 Gr., 25 Sc. Total 26.
- 11a. Messrs. L. S. MARKS and BURKE.—Machinery and Boilers.—Description
 of the different types of Engines and Boilers. 3 hours, and one afternoon
 for visits of inspection. 1 Gr., 1 So., 41 Sc. Total 43.
- 11b². Mr. L. S. MARKS.—Steam-Engine and Boilers.—General theory and
 design.—Valve gears and governors. *Hf.* 3 hours. 2d half-year.
 16 Sc. Total 16.
- 12a¹. Mr. L. S. MARKS.—Efficiency and Economics of Engines and Boilers.
Hf. 3 hours. 1st half-year. 1 Gr., 11 Sc. Total 12.
- 12c². Mr. BURKE.—Heating and Ventilation of Buildings. *Hf.* 2 or 3 hours.
 2d half-year. 17 Sc. Total 17.
- 13a. Mr. L. S. MARKS.—Engineering Laboratory.—General course in ex-
 perimental methods.—Lectures (1 hour) and laboratory work (3 hours).
Hf. 1 Gr., 26 Sc. Total 27.
- 13b. Mr. L. S. MARKS.—Engineering Laboratory.—Advanced course in ex-
 perimental Engineering. 9 hours. 8 Sc. Total 8.
- 13d. Mr. TURNER.—Engineering Laboratory.—Measurement of the flow of
 water, and testing hydraulic machinery. *Hf.* 3 hours. 7 Sc. Total 7.
- 14a. Mr. MOSES.—Machine Design.—Designing the parts of machinery.—
 Methods of proportioning the parts for strength and effect. 6 hours.
 14 Sc. Total 14.

- 14b. Professor HOLLIS. — Machine Design. — Completed designs of machinery with estimates and specifications for contractors. 9 hours.
9 Sc. Total 9.
- 16a¹. Asst. Professor ADAMS and Mr. WHITING. — Industrial Applications of Electricity. — Lectures (2 hours) and laboratory work (3 hours). *Hf.* 1st half-year.
1 Gr., 15 Sc. Total 16.
- 16c¹. Asst. Professor ADAMS and Mr. WHITING. — Direct Current Dynamo-Electric Machinery. — Theory, testing, and practice in management. — Lectures (2 hours) and laboratory work (6 hours). *Hf.* 1st half-year.
1 Se., 13 Sc. Total 13.
- 16e². Asst. Professor ADAMS and Mr. WHITING. — Alternating Currents and Alternating Current Machinery. — Theory and testing. — Lectures (2 hours) and laboratory work (6 hours). *Hf.* 2d half-year.
1 Gr., 1 Se., 10 Sc. Total 12.
- 18a¹. Mr. BURKE. — Metallurgy. — Manufacture of the metals used in engineering construction. — Lectures on the practical working of iron and steel. *Hf.* 3 hours. 1st half-year.
1 Gr., 32 Sc. Total 33.
21. Professor HOLLIS. — Engineering Conference on the general theory of Machinery and the commercial and economic questions involved in the selection of types of machinery for given localities and duties. — Comparison of different methods of transmitting power. 1 hour.
2 Gr., 17 Sc. Total 19.
- 22². Mr. FISHER. — Contracts and Specifications. — The principles of Common Law as applied to contracts. — Practice in drawing up specifications. *Hf.* 1 hour. 2d half-year.
30 Sc. Total 30.

Military Science.

For Undergraduates and Graduates:—

- 1¹. Lieutenant ROBINSON (U. S. Artillery). — The Operations of War (organization, tactics, logistics, strategy); Military History; Military Law. — Lectures. — Required reading and reports. *Hf.* 3 hours. 1st half-year.
3 Gr., 58 Se., 35 Ju., 44 So., 9 Fr., 4 Sp., 13 Sc., 2 Law. Total 168.
- 2². Lieutenant ROBINSON (U. S. Artillery). — Military Engineering; Fortification; Ordnance and Gunnery; Electricity in Warfare. — Required reading and problems. *Hf.* 3 hours. 2d half-year.
2 Gr., 33 Se., 27 Ju., 33 So., 6 Fr., 3 Sp., 18 Sc. Total 122.

Physics.

Primarily for Undergraduates:—

- B. Professor HALL and Mr. McELFRESH. — Experimental Physics. — Lectures (1 hour) and laboratory work (2 hours). *Hf.*
24 So., 32 Fr., 14 Sp., 31 Sc. Total 101.
- C. Asst. Professor SABINE and Mr. T. LYMAN. — Experimental Physics. — Mechanics, Sound, Light, Magnetism, and Electricity. — Lectures (1 hour) and laboratory work (4 hours).
1 Gr., 5 Se., 7 Ju., 8 So., 19 Fr., 4 Sp., 20 Sc. Total 64.

1. Professor HALL and Mr. FISKE. — General Descriptive Physics. — Lectures (2 hours) and laboratory work (2 hours).
3 Se., 6 Ju., 14 So., 12 Fr., 5 Sp., 61 Sc. Total 101.

For Undergraduates and Graduates : —

2. Asst. Professor SABINE. — Light and Heat. — Lectures (2 hours) and laboratory work in Thermometry and Physical Optics (6 to 8 hours).
3 Gr. Total 3.
3. Professor B. O. PEIRCE and Mr. DOUGLASS. — Electrostatics, Electrodynamics, and parts of Electromagnetism. — Lectures (1 hour) and laboratory work (6 to 8 hours). 4 Gr., 2 Se., 3 Ju., 5 Sc. Total 14.
4. Professor TROWBRIDGE, Asst. Professor SABINE, and Mr. COLPITTS. — Electrodynamics, Magnetism, and Electromagnetism. — Lectures (2 hours) and laboratory work. 7 Gr., 3 Ju., 1 So., 3 Sc. Total 14.
- 6¹. Professor HALL. — Elements of Thermodynamics. *Hf.* 3 hours. 1st half-year. 6 Gr., 3 Se., 2 Ju., 26 Sc. Total 37.
- 6². Professor HALL. — Modern Developments of Thermodynamics. *Hf.* 3 hours. 2d half-year. 7 Gr., 2 Se., 1 Ju. Total 10.

Primarily for Graduates : —

9. Professor B. O. PEIRCE. — Portions of the Mathematical Theory of Electricity and Magnetism. 2 or 3 hours. 7 Gr., 1 Se. Total 8.

COURSES OF RESEARCH.

- 20a. Professor TROWBRIDGE. — Spectrum Analysis. 2 hours. 2 Gr. Total 2.
- 20b. Professor TROWBRIDGE. — The Electromagnetic Theory of Light. 4 hours. 1 Gr. Total 1.
- 20c. Professor B. O. PEIRCE. — Electricity and Magnetism. 2 Gr. Total 2.
- 20d. Professor HALL. — Electromagnetism and Heat Conduction. 1 Gr. Total 1.
- 20e. Asst. Professor SABINE. — Light and Heat. 3 Gr. Total 3.

Chemistry.

Primarily for Undergraduates : —

- B. Dr. TORREY and Mr. BLACK. — Experimental Chemistry. — Lectures (2 hours) and laboratory work (4 hours).
1 Se., 3 Ju., 14 So., 37 Fr., 9 Sp., 4 Sc. Total 63.
1. Professor JACKSON, and Messrs. FULLER, CALHANE, CUSHMAN, GAZZOLO, HENDERSON, MERIGOLD, and ROBERTSON. — General Descriptive Chemistry. — Lectures (2 hours) and laboratory work (4 hours).
1 Gr., 17 Se., 40 Ju., 58 So., 48 Fr., 6 Sp., 128 Sc. Total 298.
- 2¹. Dr. TORREY. — Organic Chemistry (elementary course). *Hf.* 3 hours. 1st half-year.
14 Se., 23 Ju., 12 So., 4 Fr., 1 Sp., 9 Sc., 1 Law. Total 64.

3. Mr. SYLVESTER, and Messrs. DOW, MARK, and WHEELER. — Qualitative Analysis (chiefly laboratory work). 3 hours.
2 Gr., 15 Se., 25 Ju., 20 So., 2 Fr., 3 Sp., 30 Sc. Total 97.

4. Mr. BAXTER. — Quantitative Analysis, gravimetric and volumetric (chiefly laboratory work). 3 hours. 3 Gr., 8 Se., 5 Ju., 2 So., 6 Sc. Total 24.

For Undergraduates and Graduates: —

- 8². Asst. Professor RICHARDS. — History of Chemistry and Chemical Theory. *Hf.* 2 hours. 2d half-year.

3 Gr., 16 Se., 13 Ju., 3 So., 1 Sp., 8 Sc. Total 44.

- 9¹. Asst. Professor RICHARDS. — Advanced Quantitative Analysis. *Hf.*
3 hours. 1st half-year. 4 Se., 1 Sp., 3 Sc. Total 8.

- 10². Asst. Professor RICHARDS. — Gas Analysis. *Hf.* 3 hours. 2d half-year.
2 Gr., 6 Se., 3 Sc. Total 11.

5. Professor H. B. HILL and Mr. WHEELER. — The Carbon Compounds. — Systematic lectures upon the theories of Organic Chemistry and the properties of the more important compounds. — Ultimate organic analyses. — Preparation of organic compounds in the laboratory. 3 hours.

2 Gr., 14 Se., 2 Ju., 1 So., 5 Sc. Total 24.

Primarily for Graduates: —

6. Asst. Professor RICHARDS and Dr. GORDON. — Physical Chemistry. — Lectures (2 hours) and laboratory work.

1 Gr., 4 Se., 1 Ju., 4 Sc. Total 10.

COURSES OF RESEARCH.

- 20a. Asst. Professor RICHARDS. — Inorganic Chemistry, including Determination of Atomic Weights. 5 hours. 3 Gr., 2 Sc. Total 5.

- 20b. Professor JACKSON. — Organic Chemistry. 5 hours.
3 Gr., 1 Se., 1 Sc. Total 5.

- 20c. Professor H. B. HILL. — Organic Chemistry. 6 hours. 3 Gr. Total 3.

- 20d. Asst. Professor RICHARDS. — Physical Chemistry. 5 hours.
2 Gr. Total 2.

Botany.

Primarily for Undergraduates: —

- 1². Professor GOODALE. — Botany. — Lectures (2 or 3 hours) and laboratory practice. *Hf.* 2d half-year.

2 Gr., 11 Se., 16 Ju., 21 So., 51 Fr., 9 Sp., 22 Sc. Total 132.

- 2¹. Dr. H. M. RICHARDS. — Morphology of Plants. *Hf.* Lectures (3 hours) and laboratory work. 1st half-year.

3 Gr., 3 Se., 7 Ju., 11 So., 1 Fr., 3 Sp., 27 Sc. Total 55.

For Undergraduates and Graduates: —

3. Professor GOODALE assisted by Mr. OLIVE. — Botany (second course). — Morphology, Histology (with special reference to the technique of the microscope), and Physiology of Flowering Plants. Lectures (2 hours), with demonstrations and laboratory practice.

5 Gr., 1 Se., 1 Ju., 2 So., 2 Sc. Total 11.

- 4². Professor FARLOW and Dr. H. M. RICHARDS. — Cryptogamic Botany. —
Lectures and laboratory work. *Hf.* 3 hours. 2d half-year.
3 Gr., 2 Se., 1 Ju., 1 So., 1 Sc. Total 8.

Primarily for Graduates : —

COURSES OF RESEARCH.

- 20a. Professor GOODALE. — Structure and Development of Phanerogams. —
Experimental Vegetable Physiology. — Systematic Botany (Phanero-
gams). — Economic and Medical Botany. 6 Gr., 2 Se., 1 Sc. Total 9.
- 20b. Dr. H. M. RICHARDS. — Structure and Development of Cryptogams.
6 Gr., 2 Se., 1 Sc. Total 9.

Zoölogy.

Primarily for Undergraduates : —

- 1¹. Dr. C. B. DAVENPORT assisted by R. W. HALL. — Zoölogy. — Lectures (2 or
3 hours) and laboratory demonstrations (3 hours). *Hf.* 1st half-year.
10 Se., 13 Ju., 21 So., 31 Fr., 10 Sp., 36 Sc. Total 121.
- 2². Dr. CASTLE assisted by Mr. WAITE. — Morphology of Animals. — Lectures
(3 hours) and laboratory work. *Hf.* 2d half-year.
2 Gr., 1 Se., 5 Ju., 10 So., 4 Fr., 2 Sp., 24 Sc. Total 48.

For Undergraduates and Graduates : —

3. Dr. G. H. PARKER and Mr. R. H. JOHNSON. — Comparative Anatomy of
Vertebrates. — Lectures, laboratory work, and reports. 3 hours.
2 Gr., 4 Se., 3 Ju., 10 Sc. Total 19.
- 4¹. Professor MARK and Dr. CASTLE. — Microscopical Anatomy. — Lectures
and laboratory work. *Hf.* 3 hours. 1st half-year.
4 Gr., 4 Se., 2 Ju., 5 Sc. Total 15.
- 5². Professor MARK and Dr. CASTLE. — Embryology of Vertebrates. — Lec-
tures and laboratory work. *Hf.* 3 hours. 2d half-year.
4 Gr., 4 Se., 4 Sc. Total 12.
9. Dr. R. T. JACKSON. — Fossil Invertebrates. — Lectures (2 hours) and
laboratory work. 1 Gr. Total 1.
10. Dr. C. B. DAVENPORT. — Experimental Morphology. — Ontogenesis studied
as a process. — Lectures (2 hours), laboratory work, and a thesis.
5 Gr., 1 Sc. Total 6.
- 15¹. Dr. G. H. PARKER. — The Nervous System and its Terminal Organs. —
Sense Organs. — Lectures and reports. *Hf.* 3 hours. 1st half-year.
3 Gr., 4 Se., 2 Ju., 3 Sc., 2 Me. Total 14.

Primarily for Graduates : —

COURSE OF RESEARCH.

- 20a. Professor MARK. — Anatomy and Development of Vertebrates and Inver-
tebrates. 10 Gr., 1 Sc. Total 11.

Geology and Geography.

Primarily for Undergraduates:—

- A¹. Professor DAVIS and Mr. BOUTWELL. — Elementary Physiography. — Lectures (3 hours), written exercises, conferences (1 hour), and laboratory and field work. *Hf.* 1st half-year.

9 Ju., 15 So., 3 Fr., 6 Sp., 29 Sc. Total 62.

- B². Mr. WARD. — Meteorology (elementary course). — Lectures (3 hours), conferences (1 hour), written exercises, observations, and laboratory work. *Hf.* 2d half-year.

2 Gr., 1 Se., 21 Ju., 27 So., 20 Fr., 6 Sp., 26 Sc. Total 103.

4. Professor SHALER and Messrs. J. B. WOODWORTH and WOODMAN. — Elementary Geology. Lectures, with collateral reading. *Hf.* 2 hours.

4 Gr., 4 Se., 81 Ju., 114 So., 118 Fr., 17 Sp., 53 Sc. Total 391.

- 5². Messrs. J. B. WOODWORTH, WOODMAN, and WHITE. — Elementary Field and Laboratory Geology. — Laboratory work with occasional lectures (4 hours), in February and March; field work (one half-day) and laboratory work, in April and May. *Hf.* 2d half-year.

4 Gr., 1 Se., 9 Ju., 16 So., 29 Fr., 3 Sp., 31 Sc. Total 93.

For Undergraduates and Graduates:—

- 7². Professor DAVIS. — Physiography of Europe. — Lectures, library work, and reports. *Hf.* 3 hours. 2d half-year.

3 Gr., 3 Se., 1 So., 1 Sp., 4 Sc. Total 12.

8. Messrs. J. B. WOODWORTH and WOODMAN. — General Critical Geology. — Lectures, field work, reports, and reading. 2 hours and field work.

4 Se., 4 So., 2 Sp., 6 Sc. Total 16.

- 16¹. Mr. J. B. WOODWORTH. — Glacial Geology. — Lectures, conferences, and field work. *Hf.* 2 hours and field and laboratory work. 1st half-year.

3 Gr., 6 Se., 1 So., 3 Sc. Total 13.

- 27². Asst. Professor SMYTH. — Pre-Cambrian Geology of North America: with especial reference to the stratigraphy and economics of the rocks in the original Laurentian area and the region of the Great Lakes. *Hf.* 2d half-year.

2 Gr., 1 So., 2 Sc. Total 5.

- 28¹. Professor REUSCH. — Volcanoes and their relation to Eruptive Rocks in general. — Earthquakes and their relation to movements of the Earth's Crust. *Hf.* 3 hours. 1st half-year.

3 Gr. Total 3.

- 29². Professor REUSCH. — The Geology of Northern Europe, and its bearings on General Geology. *Hf.* 3 hours. 2d half-year.

2 Gr., 1 So., 1 Sc. Total 4.

- 17¹. Dr. JAGGAR. — Experimental and Dynamical Geology. — Lectures (2 hours), laboratory work, and occasional field work. *Hf.* 1st half-year.

1 Se. Total 1.

- 19². Mr. WARD. — Climatology. — Lectures (3 hours), library work, and reports. *Hf.* 2d half-year.

4 Se., 7 Ju., 2 So., 1 Sp., 1 Sc. Total 15.

14. Professor SHALER and Dr. R. T. JACKSON. — General Palaeontology. — Lectures and theses. *Hf.* 2 hours.
2 Gr., 4 Se., 4 Ju., 4 So., 2 Sp., 5 Sc. Total 21.
15. Professor SHALER and Dr. R. T. JACKSON. — Historical Geology. — Laboratory and field work, with conferences and theses. 1 hour.
3 Gr., 3 Sc. Total 6.
10. Asst. Professor SMYTH. — Mining Geology. — The origin and geological relations of ore-deposits. — Lectures, reading, and occasional field work. 3 hours.
1 Gr., 2 Se., 1 So., 5 Sc. Total 9.
- 18¹. Professor SHALER and Asst. Professor SMYTH. — Economic Geology. — Non-metalliferous products and water-supply. — Lectures, reading, and theses. *Hf.* 2 hours. 1st half-year. 1 Se., 4 Sc. Total 5.

Primarily for Graduates : —

COURSES OF RESEARCH.

20. Professor DAVIS. — Physiography (advanced course). — Conferences, reports, and theses. 1 or 2 hours. 3 Gr., 1 Se., 3 Sc. Total 7.
- 22a. Professors SHALER, DAVIS, and WOLFF, Asst. Professor SMYTH, Dr. JAGGAR, and Mr. J. B. WOODWORTH. — Advanced Geological Field Work. — Field and library work, with reports, conferences, and theses. 1 hour. 2 Gr., 1 Sp., 4 Sc. Total 7.
- 22b. Professor SHALER and other instructors in the Department. — Geological Investigation in the Field and Laboratory. 2 Gr. Total 2.

Mineralogy and Petrography.

Primarily for Undergraduates : —

2. Professor WOLFF, Dr. PALACHE, and Dr. EAKLE. — Mineralogy (including Crystallography, Physical and Chemical Mineralogy, and Descriptive Mineralogy). 3 hours and laboratory work.
1 Gr., 8 Se., 4 Ju., 6 So., 1 Fr., 2 Sp., 13 Sc. Total 35.

For Undergraduates and Graduates : —

12. Professor WOLFF. — Petrography. — Lectures (2 hours), laboratory work, and theses. 2 Gr., 2 Sc. Total 4.

Mining and Metallurgy.

These courses cannot be counted towards the degree of A.B.

- 1². Asst. Professor SMYTH. — Mining. — Prospecting and Exploring. *Hf.* 3 hours. 2d half-year. 6 Sc. Total 6.
- 2¹. Mr. FORSYTHE. — Metallurgy. — Metallurgy of iron and steel, copper and nickel. — Lectures (3 hours), reading, and excursions. *Hf.* 1st half-year. 1 Gr., 8 Sc. Total 9.
- 3². Mr. FORSYTHE. — Metallurgy. — Metallurgy of lead, zinc, gold, silver, and the minor metals. Lectures (3 hours), reading, and excursions. *Hf.* 2d half-year. 1 Gr., 1 Se., 1 Sp., 8 Sc. Total 11.

5. Asst. Professor SMYTH. — Mining. — Coal and Metal Mining, including excavation, development, underground and surface transportation, drainage, ventilation. — Lectures (3 hours) and reading. 3 Sc., 1 Sp. Total 4.
6. Mr. FORSYTHE. — Metallurgical Chemistry. — The analysis of ores, metals, slags, fuels, and refractory materials. — Fire assaying. — Chiefly laboratory work. 3 hours. 1 Gr., 1 Sc. Total 2.

American Archaeology and Ethnology.

For Undergraduates and Graduates : —

1. Messrs. RUSSELL and DIXON. — General Anthropology. — Somatology; Archaeology, Ethnology, and Ethnography. — Lectures (3 hours) and laboratory work. 3 Gr., 4 Se., 1 Ju., 1 So. Total 9.

Primarily for Graduates : —

- 2². Mr. RUSSELL. — Somatology. — Lectures and laboratory work. *Hf.*
3 hours. 2d half-year. 1 Gr. Total 1.

COURSE OF RESEARCH.


- 20a. Professor PUTNAM. — American Archaeology and Ethnology.
4 Gr. Total 4.

Anatomy, Physiology, and Hygiene.

These courses may be counted towards the degree of S.B. only, except Courses I and 10, which may also be counted towards the degree of A.B.

- 1². Asst. Professor G. W. FITZ and Dr. M. H. BAILEY. — Elementary Anatomy and Physiology. — Personal Hygiene. — Emergencies. — Lectures (3 hours) and laboratory work (3 hours). *Hf.* 2d half-year.
1 Gr., 17 Se., 12 Ju., 21 So., 2 Fr., 2 Sp., 23 Sc., 3 Me. Total 81.
- 10¹. Asst. Professor G. W. FITZ. — General Hygiene. — Lectures (2 hours), laboratory work, excursions, and reports. *Hf.* 1st half-year.
4 Se., 6 Sc. Total 10.
- 2¹. Dr. D. A. SARGENT and Asst. Professor G. W. FITZ. — History and Philosophy of Physical Education. *Hf.* 1 hour. 1st half-year. 4 Sc. Total 4.
- 4¹. Dr. D. A. SARGENT. — Anthropometry. — Measurements and Tests of the Body. — Effects of Age, Nurture, and Physical Training. — Lectures and practical exercises. *Hf.* 3 hours. 1st half-year. 1 Sc. Total 1.
- 5². Dr. D. A. SARGENT. — Applied Anatomy and Animal Mechanics. — Action of the muscles in different exercises. — Lectures and demonstrations. *Hf.*
3 hours. 2d half-year. 1 So., 1 Sc. Total 2.
- 6². Asst. Professor G. W. FITZ. — Remedial Exercises. — The correction of abnormal conditions and positions. — Lectures and demonstrations. *Hf.*
2 hours. 2d half-year. 1 Sc. Total 1.

Summer Courses of Instruction, 1898.

The following is a list of the Courses of Instruction given during the summer of 1898, under the direction of the Faculty of Arts and Sciences, with an enumeration and classification of the students taking each course. The same abbreviations are used as in the list of Courses of Instruction for 1897-98, with the addition of the abbreviation S.S. to denote persons in attendance on the Summer School and otherwise unconnected with the University. The index  denotes courses which may be offered to count towards a degree.

SUMMER COURSES OF 1898.

Greek.

- A. Dr. GULICK. — Greek for Beginners. 6 times a week, for 6 weeks.
1 Gr., 2 Sp., 8 S. S. Total 11.
- B. Dr. GULICK. — Greek for Teachers. — Discussion of elementary text-books, and methods used in teaching beginners. — Practice in reading Xenophon and Homer. 6 times a week, for 6 weeks. 1 Se., 4 S. S. Total 5.

Latin.

- Dr. MATHER. — Discussion of methods in teaching Latin to beginners. — Literary study of selections from Pliny's Letters, Juvenal's Satires, and Martial's Epigrams. 6 times a week, for 6 weeks. 22 S. S. Total 22.

English.

- A. Mr. HURLBUT, assisted by Mr. J. G. HART. — English Composition (elementary course). 5 times a week, for 6 weeks.
1 Me., 63 S. S. Total 64.
- B. Mr. ABBOTT, assisted by Mr. J. G. HART. — English Composition (advanced course). 5 times a week, for 6 weeks. 45 S. S. Total 45.
- C. Mr. YOUNG. — English Composition (second advanced course). 5 times a week, for 6 weeks. 9 S. S. Total 9.
- Dr. SCHOFIELD. — Anglo-Saxon. 6 times a week, for 5 weeks.
4 S. S. Total 4.
- Dr. FARLEY. — Chaucer. 5 times a week, for 6 weeks. 2 S. S. Total 2.
- Mr. HURLBUT, assisted by Mr. J. G. HART. — English Literature of the Eighteenth Century. 5 times a week, for 6 weeks. 43 S. S. Total 43.

German.

- Dr. POLL. — Elementary Course. — Grammar, reading, and composition.
6 times a week, for 6 weeks. 12 S. S. Total 12.

Dr. POLL. — Advanced Course. — Daily lectures, in German, on the history of German Literature, accompanied by the cursory reading of the Nibelungenlied and a few representative works of later periods. — Interpretation of Schiller's Wallenstein, and of Goethe's Faust (Part I). — Themes in German on subjects connected with the lectures or the reading. 6 times a week, for 6 weeks. 1 Gr., 7 S. S. Total 8.

French.

Mr. C. H. C. WRIGHT. — Introductory Course. — Grammar, reading, and composition. 6 times a week, for 6 weeks. 13 S. S. Total 13.

Mr. C. H. C. WRIGHT. — Advanced Course. — (a) Lectures, in French, on the history of French literature, with special reference to the Classical period (Corneille, Racine, Molière), and to the great literary movement of the Nineteenth century. — (b) A thorough study of Corneille's Polyeucte, Racine's Athalie, Molière's les Femmes Savantes. Two or three of the more important works of the Nineteenth Century were taken up in a similar manner. — (c) Summaries of works and themes on selected topics. 6 times a week, for 6 weeks. 16 S. S. Total 16.

History and Government.

I. Professor HART and Mr. LEARNED. — American History. 1 So., 25 S. S. Total 26.

II. Professor HART and Mr. F. H. WHITE. — Civil Government. 2 S. S. Total 2.

III. Dr. BOTSFORD. — Greek History. 1 So., 16 S. S. Total 17.

IV. Mr. J. P. WARREN. — Historical Excursions.

Psychology.

Professor MÜNSTERBERG and Mr. J. E LOUGH. — Experimental Psychology. 6 times a week, for 6 weeks. 1 Gr., 2 Sc., 1 Di., 21 S. S. Total 25.

Education and Teaching.

I. Asst. Professor HANUS. — General Principles of Education, and Courses of Study. 55 S. S. Total 55.


II. Mr. G. H. LOCKE. — History of Education.


Asst. Professor HANUS. — Methods of teaching Geometry and Algebra. 6 times a week, for 6 weeks. 15 S. S. Total 15.


Architecture.

Asst. Professor WARREN. — Architectural Drawing and Design. 8 Sc. Total 8.

Mathematics.

 S1. Mr. ASHTON. — Elementary Solid Geometry. 5 times a week, for 6 weeks. 1 Ju., 2 So., 2 Fr., 2 Sc., 4 S. S. Total 11.

 S2. Mr. LOVE. — Plane Trigonometry. — Logarithms. — Problems in the calculation of heights, distances, and areas, and in sailing. 5 times a week, for 6 weeks. 1 Ju., 3 So., 5 S. S. Total 9.


 S3. Mr. LOVE. — Plane Analytic Geometry. 5 times a week, for 6 weeks. 1 Fr., 3 S. S. Total 4.

S4. Mr. ASHTON. — Calculus. 5 times a week, for 6 weeks. 1 Ju., 1 So., 3 Sc. Total 5.

Astronomy.

Dr. WILLSON. — Descriptive Astronomy. 1 Gr., 1 Sc., 3 S. S. Total 5.


Engineering.

 S1. Mr. TURNER. — Surveying, Plotting, and Topographical Drawing. — Johnson's Theory and Practice of Surveying. — Geodesy. 6 times a week, for 5 weeks. 3 Ju., 1 Fr., 7 S. S. Total 11.

S2. Mr. TURNER. — Railroad Engineering. 3 Ju., 1 Fr., 7 S. S. Total 11.

Physics.

S1. Mr. J. Y. BERGEN. — Elementary Experimental Physics. 6 times a week, for 6 weeks. 1 Sp., 1 Sc., 24 S. S. Total 26.

 S2. Asst. Professor SABINE. — Experimental Physics. — Measurements in Mechanics, Sound, Light, Electricity, and Magnetism. 6 times a week, for 6 weeks. 1 So., 1 Sp., 3 Sc., 8 S. S. Total 13.


Chemistry.

Dr. TORREY and Messrs. POTTER and PERKINS. — General Chemistry. 6 times a week, for 6 weeks. 1 Gr., 1 So., 20 S. S. Total 22.


Mr. SYLVESTER. — Qualitative Analysis. 6 times a week, for 6 weeks. 3 S. S. Total 3.

Dr. GORDON. — Physical Chemistry. 2 S. S. Total 2.

Botany.

 S1. Professor GOODALE and Mr. OLIVE. — Vegetable Morphology and Systematic Botany. — Laboratory in both subjects. 6 times a week, for 6 weeks. 2 So., 1 Fr., 22 S. S. Total 25.

Geology.

 S1. Professor SHALER, Dr. JAGGAR, and other instructors in the Division of Geology. — Elementary Geology (at Cambridge). 6 times a week, for 6 weeks. 1 Ju., 2 So., 3 Fr., 2 Sc., 8 S. S. Total 16.

Geography.

Professor DAVIS and Mr. BOUTWELL. — Elementary Physiography. 6 times a week for 6 weeks. 1 Gr., 45 S. S. Total 46.

Professor DAVIS and Mr. JEFFERSON. — Physiography (second course). —
 Physiography of the United States. 6 times a week, for 6 weeks.

9 S. S. Total 9.

Physical Training.

Dr. SARGENT and assistants. — Physical Training.

83 S. S. Total 83.

Instruction provided for 1898-99.

The Announcement of Courses of Instruction for 1898-99 was issued as usual in pamphlet form near the close of the last academic year, and may be found, corrected to date, in the Annual Catalogue of the present year. Some changes have been made in the interval, owing to the unexpected absence of instructors and to other causes. Among these changes is the temporary suspension of the courses in Roman Law and in Military Science. On the other hand, some new courses have been added to the list; but the net result is a very slight decrease in the total amount of instruction as compared with that offered for 1897-98. The new list shows no fundamental change of plan. It contains, as usual, many changes of detail, especially changes of instructors or of the plan of instruction in some of the courses that are given regularly every year, and changes due to alternation or rotation among the more advanced courses. There were also some changes of arrangement. Into these minor changes it seems unnecessary to enter here. On the other hand, the following courses, which are distinct additions to the list, may properly receive special notice: —

Mr. A. L. LYTGOE. — Egyptian Archaeology. *Hf.*

Dr. BOTSFORD. — The Histories of Herodotus (read and discussed in the original Greek).

Professor WHITE. — History of the Greek Drama. — Lectures on the dramatic art and literature of the Greeks, with collateral reading and study of representative plays. *Hf.*

Professors MORGAN and MARSH. — The works of Virgil, with studies of his sources and his literary influence from his own times to the Renaissance.

Asst. Professor MORGAN. — The early career of Cicero, to the end of the prosecution of Verres. — Lectures and reading of the Orations. — *Hf.*

Professor SMITH. — Introduction to Latin Epigraphy. *Hf.*

Asst. Professor C. P. PARKER. — Social Movements in the First Century. *Hf.*

Professor WRIGHT. — Studies in Classical Archaeology and Art (a course of research, chiefly in the literary and epigraphic history of Greek and Graeco-Roman art). *Hf.*

Professor A. S. HILL. — English Composition and Literature. — Study of leading writers as masters of style. *Hf.* (to take the place of the second half of English 5).

Professor WENDELL. — English Literature : Literary History of America. *Hf.*

Mr. NICHOLS. — History of German Literature in the Nineteenth Century. *Hf.*

Professor VON JAGEMANN. — Introduction to the study of Germanic Philology (second course). *Hf.*

Asst. Professor SCHILLING. — Kudrun and the kindred Sagas in other Germanic dialects. (Seminary course.)

Professor FRANCKE. — Selected German Passion Plays of the Fifteenth Century. *Hf.* (Seminary course.)

Dr. SCHOFIELD. — Modern Danish and Norwegian Literature.—Holberg, Oehlen-schläger, Ibsen, Björnson, and other writers; practice in the spoken language; lectures on Scandinavian literature.

Dr. SCHOFIELD. — The Origin and Literary History of the Arthurian Legends and Romances.

Mr. FLETCHER. — History of the Pastoral, particularly in the Renaissance. *Hf.*

Professor EMERTON. — The History of Christian Thought, considered in its relation to the prevailing philosophy of each period, from the earliest times to the Eighteenth Century.

Professor HART. — The Sources and Literature of American History. *Hf.*

Professor CHANNING. — English Institutions in the Tudor and Stuart Periods. (Seminary course.)

Professors STROBEL and BEALE. — International Law. (Seminary course.)

Dr. CUNNINGHAM (of Trinity College, Cambridge, England). — Western Civilization (Mediaeval and Modern) in its Economic Aspects. *Hf.*

Dr. CUNNINGHAM. — The Industrial Revolution in England. *Hf.*

Dr. J. CUMMINGS. — Ethnology in its applications to Economic and Social Problems. *Hf.*

Professor EVERETT. — A Study of Fichte, with special reference to the Philosophy of Religion. (Seminary course.)

Mr. E. ROBINSON. — Classical Archaeology (an advanced course arranged primarily for students who contemplate entering the American School of Classical Studies at Athens).

Asst. Professor M. BÔCHER. — The Theory of Numbers. *Hf.*

Professor F. S. WOODS (of the Massachusetts Institute of Technology). — Higher Geometry.

Dr. BOUTON. — Lie's Theories as applied to Differential Equations.

Asst. Professor OSGOOD. — The Icosahedron and the Elliptic Modular Functions. (Course of research.)

Asst. Professor M. BÔCHER. — Euclid and the Hypotheses of Geometry. (Course of research.)

Professor ASAPH HALL (U. S. Navy). — Spherical Astronomy.

Asst. Professor JOHNSON. — Elementary Structural Design. *Hf.*

Professor B. O. PEIRCE. — The Mathematical Theory of Electricity and Magnetism (second course). *Hf.*

Dr. JAGGAR. — Structural and Dynamical Geology of the United States. *Hf.*

Professor PUTNAM and Mr. DIXON. — Primitive Religions (theories of origin, animism, totemism, fetishism, etc.). *Hf.*

The Degree of Master of Science.

The proposition to establish a degree in Science parallel to that of Master of Arts, and standing between the degrees of S.B. and S.D. as the A.M. stands between the A.B. and the Ph.D., was brought to the attention of the Faculty in the summer of 1895 by the Administrative Board of the Lawrence Scientific School, and was subsequently referred to a committee for consideration. On the recommendation of this committee the Faculty voted on the ninth of November, 1897, "to request the Corporation and Board of Overseers to institute the degree of Master of Science, and to commit the administration of this degree to the Faculty of Arts and Sciences, subject to all the regulations relating to degrees contained in the Statutes, with the understanding that the degree shall be maintained for the promotion of advanced study in some special field of Science, and that it shall never be given as an honorary degree."

On receiving notice that action had been taken by the governing boards in accordance with this request, the Faculty proceeded to formulate rules for the administration of the newly established degree. Under these rules, which were adopted June 21, 1898, candidacy for the degree of Master of Science is open to any Bachelor of Science or Bachelor of Arts of Harvard University, and the Committee on Admission to the Lawrence Scientific School from other Scientific Schools is empowered to admit (with or without conditions) other persons whose attainments it deems sufficient; but in either case the applicant must satisfy the Division in which he wishes to study that he is qualified by his previous training for such candidacy. The course of study for the degree must be of such character that it can be properly pursued under the supervision of a single Division of the Faculty, and while not necessarily lying within any one department or field, must form a consistent plan of work, with a definite aim in view. It must occupy at least one academic year, and must be

pursued with high credit. Candidates are registered in the Graduate School, and the Administrative Board of that School has general charge of the award of the degree, so far as may be necessary to enforce the formal requirements, and to guard against possible inequalities in the standards maintained by the several Divisions.

Revision of the Requirements for Admission.

This difficult subject, which has been under consideration, first by a large committee of the Faculty and then by the Faculty itself, since 1894, was taken up early in the year. A history of the successive changes that have been made in the requirements for admission and an account of the progress made in the present revision down to the end of the academic year 1896-97 was given by my predecessor, Professor J. M. Peirce, in his last annual report. At that time the Faculty had completed the work of defining the requirements in the several studies in which the candidate may present himself for examination. The old definitions had been thoroughly revised, and definitions formulated for a number of new studies which it is proposed to accept in satisfaction of the requirements for admission. The new series of definitions was published in a special pamphlet in the summer of 1897, and again in the Annual Catalogue for 1897-98 (pp. 288-302).

The Faculty had also, during the year 1896-97, drawn up a preliminary statement of terms of admission to the Lawrence Scientific School, which was explained by Professor Shaler, as Dean of the School, in his report for that year, and may also be found in the Catalogue (pp. 303-306). The most important feature of the scheme,—the gradual raising of the admission requirements of the Scientific School to substantial equality with those of the College—has already received the approval of the governing boards, and the precise determination of certain details alone requires the final action of the Faculty.

The problem still awaiting solution was the formulation of the terms of admission to Harvard College, and to this the Faculty devoted its first seven regular meetings of the year. The problem was in effect to determine which of the studies should be prescribed for all candidates, and which should be elective; what restrictions, if any, should be placed on the choice of elective studies; what relative weight should be assigned to the several studies in comparing elective studies with one another and in determining the candidate's fitness for admission; and, finally, what should be

the total amount of the requirement. The method to be pursued in formulating the terms of admission, so far as the last two questions are concerned, had already been decided upon. The Faculty had published, in the pamphlet referred to above, its purpose "to assign to each study a certain number of points, representing the relative weight which that study will have in determining the question of a candidate's fitness for admission, and to state the total amount of the requirement for admission in the form of a fixed aggregate of points which may be made up by various combinations of studies under regulations to be announced hereafter"; and with this had coupled the further announcement that the Faculty "does not intend to increase the total amount of work required in preparation" for admission.

The policy here announced made it necessary for the Faculty to consider carefully the effect of the new definitions on the time and effort required for preparation in the several studies. There were changes of substance in three of the existing requirements. In Elementary Mathematics, under the title 'Geometry' a new definition, including a certain amount of solid geometry, was substituted for the old 'Plane Geometry'; but as a candidate who passes in it is credited with one 'point' more than if he passed in Plane Geometry, this change constitutes no increase of the total requirement for admission. Moreover the old requirement of Plane Geometry is to be allowed as an alternative until 1903. In Elementary Physical Science, on the other hand, the alternative of an examination in Physics and Astronomy, based on text-books, was dropped in the new definitions. In Elementary Latin the main test is to be the translation at sight of simple prose and verse, instead of simple prose only. The object of this change was to adjust the line of division between the Elementary and the Advanced Latin to the terms of the requirements, which call for a three years' preparation for the Elementary, and one more for the Advanced Latin,—a demand quite in accordance with the actual practice of the schools. It involves no increase in the total requirement in Latin, and therefore does not affect the great majority of candidates, but only those—about seventeen per cent. during the last four years,—who do not offer Advanced Latin; and indeed not all of these, for many if not most of them come from schools in which they have received adequate preparation for the elementary requirement in its new form. The change, moreover, is a return to the requirements as they existed down to 1887, when the elementary examination included six books of the *Aeneid*.

But apart from these changes in the substance of the requirements, there is a general tendency in the new definitions towards a greater degree of thoroughness in methods of examination. This is most marked in Elementary History, in which under the method of examination formerly in use it was not possible to hold the candidate to a thorough course of preparation or to baffle hasty cramming. Under the new definition, while the fields of study remain substantially unchanged, a very thorough method of study, including considerable written work, is prescribed and is to be enforced by the examinations. In Greek, Latin, German, and French, methods of testing the candidate's mastery of forms, constructions, and idioms are introduced or are made more thorough, which will operate to head off a very superficial kind of preparation with which some candidates, especially in the modern languages, have successfully met the test of the examinations; but they add nothing to what we have heretofore professed to require, and are not expected to increase the time now given to preparation in these languages in good schools.

It should be added that the Committee which reported the new definitions to the Faculty drew them up, as it had been instructed to do, in conformity with the programmes of the Committee of Ten for preparatory courses of four years; and that the courses of study demanded by the several definitions had been most carefully considered in consultation with teachers of secondary schools, partly by personal correspondence, partly through conferences. Having taken an active part in several of these conferences, as well as in the deliberations of the Committee, I venture to express the opinion that, under the new definitions, the present total requirement comes within the capacity of a well conducted school course of four years, which has heretofore been regarded as the minimum adequate course for preparation. Whether there is an increase over the present requirement, as enforced by the present examinations, is another question. The Faculty thought it wise, on the whole, to guard against such an increase by reducing the total requirement by one point. The existing requirement, if estimated according to the new system, would amount to 27 points; the total requirement in the new scheme is fixed at 26 points. A 'point' is estimated to represent approximately a half-year's work in one study, of four or five lessons a week, in school, or a 'half-course' in College.

The scheme adopted by the Faculty is as follows:—

The studies which may be presented in satisfaction of the requirements for admission to Harvard College are named in the following list. The figure attached to each study indicates the relative weight which will be given to that study in determining the question of the candidate's fitness for admission.

<i>Elementary.</i>	<i>Advanced.</i>
English (4).	Greek Authors (2).
Greek (3).*	Greek Composition (1).
Latin (4).	Latin Authors (2).
German (2).	Latin Composition (1).
French (2).	German (2).
	French (2).
<hr/>	
Ancient History (2).	One of the following four:—
or	Ancient History (2).
English and American	English and American History (2).
History (2).	History of Europe (2).
	History of a period (2).
<hr/>	
Algebra (2).	Algebra (1).
Geometry (3).	Logarithms and Trigonometry (1).
or (until 1903)	Astronomy (1).
Plane Geometry (2).	
<hr/>	
Physics (2).	Physics (2).
Chemistry (2).	Meteorology (1).
Physiography (1).	
Anatomy, etc. (1).	

No candidate for admission may offer an advanced study who does not at the same time or earlier offer the corresponding elementary study; but Physics is considered elementary with respect to Meteorology, and Geometry with respect to Astronomy.

A candidate must offer studies aggregating twenty-six points, at least four of which must be in advanced studies. The studies offered must include:—

English	4
One ancient language (Elem. Latin or Elem. Greek)*	4
One modern foreign language (Elem. German or Elem. French)	2
Geometry or (until 1903) Plane Geometry	3 or 2
Studies aggregating 2 points from the following observational sciences (Elem Physics, Chemistry, Physiography, Anatomy, Astronomy)	2
	<hr/>
	15 or 14

* Elementary Greek offered without Latin will count 4.

As regards the classification of studies, the 'Elementary' list in the new scheme includes all the elementary studies of the old plan, with the addition of Chemistry, transferred from the 'Advanced' list, and two new studies, Physiography, and Anatomy, Physiology, and Hygiene. In the new 'Advanced' list Chemistry and Analytic Geometry have disappeared, and three new studies, History, Astronomy, and Meteorology, have been added.

In the rating of the several studies, the Faculty had given to the advanced studies a weight in the old plan out of proportion to the amount of work supposed to be demanded by them in preparation. Thus Advanced German counted two points, Elementary German only one, though each was defined as equivalent to one full course in college. The grounds for this difference were, first, the greater progress made by a student at a more advanced stage of his preparation than in the same amount of time at a less advanced stage, — a principle recognized also in our college scheme, where the nominal amount of work required of a student diminishes from his Freshman to his Senior year; and, secondly, the greater importance of the candidate's preparation in his last year from its closer bearing on his college work. In the new scheme this disproportion is no longer maintained. While the advanced studies are rated as heretofore, — those which are defined as equivalent to a full course in college counting two points, those equivalent to a half-course counting one, — the elementary studies as a rule have been given twice the weight they now have; thus English is to count four points instead of two, German two instead of one, etc. The only exceptions to this rule are in the classical and mathematical studies. Of the former, Latin is assigned four points instead of two, but Greek only three points instead of two, with the proviso that Greek, if presented without Latin, shall count four points. Elementary Greek and Latin together, therefore, can in any case count only seven points, or one point less than if their relative weight under the existing plan had been maintained. In Elementary Mathematics, on the other hand, Algebra and Geometry together may count under the proposed scheme for five points, or one point more than would be given them in accordance with their present rating, but at the expense of some increase of work, as explained above.

The range and freedom of election open to the candidate are materially enlarged in the proposed plan. The list of advanced studies, which are all to be elective as heretofore, remains, in number and amount, the same as before, the loss of Chemistry and of Solid and Analytic Geometry having been made good by the addition of

History, Astronomy, and Meteorology; so that the only enlargement of election in this list is in the choice among four fields of History open to a candidate who elects that study. In the elementary list, on the other hand, there is a considerable enlargement of choice. At present the elementary studies are all prescribed, with the exception that for one ancient and for one modern language a substitute may be presented under certain restrictions. For one of the modern languages one whole advanced study may be substituted, but the student is then required to take the omitted language as one of the studies of his Freshman year. This conditional postponement of German or French is retained in the new plan, but the candidate in his choice of a substitute is no longer restricted to advanced studies. For one of the ancient languages the candidate is at present permitted to substitute advanced studies amounting to two full courses, of which one must be in mathematics and the other either in mathematics or in physical science. In the new scheme any elective study, whether elementary or advanced, may be substituted for Greek or for Latin, and as a consequence of its reduced rating, the amount of the substitute demanded is only three quarters of what is demanded at present. In physical science, while the text-book Physics and Astronomy has been withdrawn as an alternative for Experimental Physics, the candidate's choice has on the whole been much widened by the admission of four other 'observational sciences,' as studies from which he may make his choice. Finally, History and Algebra, at present prescribed for all candidates, are made elective by the new plan.

The requirement of advanced studies aggregating four points is a continuation of the provision in the present terms of admission whereby every candidate must pass on at least two advanced studies; but it is less severe, because at present every substitute for an elementary study must be made up of studies taken from the advanced list, *in addition* to the two demanded of all candidates; whereas, under the proposed scheme, the candidate may omit, for example, either Greek or German without going beyond the minimum requirement of two advanced studies or even taking Chemistry or Solid Geometry, which are now open to him in the advanced list. If we count these as elementary studies, as they are classed in the new plan, he may omit *both* Greek and German, and still take only two advanced studies, instead of five, as at present.

These are the essential points of difference between the present requirements for admission and those proposed in the plan adopted by the Faculty on January 4, and transmitted to the Corporation for

the consideration of that body and of the Board of Overseers. On October 11, 1898, the Faculty received from the Corporation a copy of the votes passed June 15 by the Overseers, which expressed general approval of the various measures passed by the Faculty relating to admission requirements, with the exception of the proposed terms of admission to Harvard College, in regard to which the vote was as follows:—

Resolved, That the proposed changes in the requirements for admission are not entirely satisfactory, and that the proposed scheme be recommitted to the Faculty of Arts and Sciences for further consideration and report, to the end that the *préparation* in Algebra and History now required of candidates for admission may not be reduced.

The question is thus recommitted to the Faculty and is now again under consideration.

CLEMENT L. SMITH, *Dean*.

DECEMBER, 1898.

THE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I beg to make my report on the condition of Harvard College during the academic year 1897–98.

The number of students at the beginning of the year was eighteen hundred and nineteen:—

Seniors	342
Juniors	387
Sophomores	450
Freshmen	471
Total number of Undergraduates	1650
Special Students	169
	<u>1819</u>

Compared with the figures of the preceding year, these figures show a gain of sixty-five:—

	Gain.	Loss.
Seniors	14	..
Juniors	10	..
Sophomores . . . . .	..	23
Freshmen	55	..
Special Students	9	..
	<u>88</u>	<u>23</u>
	23	
Net gain	65	

One Senior on leave of absence, one Senior in regular attendance, one Sophomore, and one Special Student died within the academic year. A soldier from the class of 1900 died in the summer vacation.

Three hundred and ninety-two students, of whom seventy were not registered as Seniors, received in June, as members of the graduating class, the degree of Bachelor of Arts. The losses and the gains in the three younger classes between November, 1897, and November, 1898, may be learned from the following tables:—

	November, 1897.	Loss.	Gain.	November, 1898.
Class of 1899 . .	(Juniors) 337	95	74	(Seniors) 366
Class of 1900 . .	(Sophomores) 450	150	36	(Juniors) 336
Class of 1901 . .	(Freshmen) 471	84	120	(Sophomores) 507
		<u>329</u>	<u>230</u>	
Net loss in the three classes between Nov. 1897, and Nov. 1898 99				

	Class of 1899.	Class of 1900.	Class of 1901.	Total for three classes.
LOSSES.				
Left College before the end of the year . .	4	12	20	36
Left College at the end of the year	70	27	23	120
Were "dropped" and left College	8	12	2	22
Entered a lower class	4	52	27	83
Entered a higher class	9	47	12	68
Total loss	95	150	84	329
GAINS.				
From higher classes	2	6	52	60
From lower classes	48	11	0	59
Newly admitted	24	19	68	111
Total gain	74	36	120	230
Net loss	21	114	0	99
Net gain	0	0	36	0

The next table shows the losses and the gains in the number of Special Students since December, 1897:—

In attendance, December, 1897	164
Left College before the end of the year	29
Left College at the end of the year	40
Entered a College class	28
Total loss	97
Reëntered College as Special Students, 1898	67
Newly admitted	100
Total	167
Net gain	3

The number of Special Students is surprisingly constant. For six years, it has neither fallen below one hundred and sixty nor reached one hundred and seventy.

The Freshman class is larger by one student than in 1897:—

Admitted by examination in 1898	404
Admitted by examination before 1898	25
From a higher class	38
“ the Special Students	3
“ the Lawrence Scientific School	2
Total	472

Thirty-seven persons who took in June some of their Final Examinations for admission did not take the remainder in September.

Besides these, five hundred and sixty-three (eight less than in 1897) took Final Examinations. Of the five hundred and sixty-three, four hundred and forty-eight already had Preliminary certificates; fifty-one divided the examinations between June and September; forty-two took all their examinations in June; and twenty-two took all in September. It is noteworthy that the number of "postponing" candidates has shrunk; that more than half of the successful June candidates were admitted "clear"; and that the September candidates were much less weak than in 1897:—

	Admitted.	Admitted "Clear."	Rejected.
June	408	210	52
September	84	9	19
Total	492	219	71

The five hundred and sixty-three candidates chose their plans of admission as follows:—

Plan (a): All the Elementary Studies and at least two Advanced Studies; sixteen hours of examination	219
Plan (b): All the Elementary Studies except either German or French, and at least three Advanced Studies; seventeen hours of examination	278
Plan (c): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; eighteen hours of examination	64
Plan (d): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; nineteen hours of examination	2
	<u>563</u>

In the foregoing table the number of hours required by each plan of examination remains as in the table for 1897. As a matter of fact, the time allotted in the examination programme to Elementary German, Elementary French, History, Elementary Algebra, and Plane Geometry has been lengthened in each case by a half-hour; but in all questions of Preliminary certificates, of Postponement, and of admission and rejection, these studies are still rated as if each occupied a single hour. Strictly, plan (a) now occupies eighteen and a half hours; plan (b), nineteen; plan (c), twenty and a half; and plan (d), twenty-one. Though plan (b) still attracts the largest number of candidates, plan (a) has gained at the expense of plan (b); plan (c) has made once more a decided gain; and plan (d) has demonstrated once more its insignificance.

The next table shows the comparative success of the four plans :—

	Admitted.	Rejected.	Percentage of Failure.
Plan (a)	197	22	10
" (b)	247	31	11
" (c)	46	18	28
" (d)	2	..	..
	<u>492</u>	<u>71</u>	

The percentage of failure among the five hundred and sixty-three candidates is a little higher than twelve and a half.

Of the five hundred and sixty-three candidates, four hundred and fifty-six offered Ancient History rather than Modern; ninety-nine, Modern rather than Ancient; one, both Ancient and Modern; and seven, neither. In 1897, Modern History (with two hundred and nineteen candidates against less than a hundred in 1896) appeared to have made a substantial gain; but the figures for 1898 show that the gain was transient and accidental. Such fluctuations confirm an impression that in school History is still treated with little respect; they could scarcely occur in any subject systematically provided for by schools and tutors. Four hundred and twenty-six candidates (one hundred and fourteen more than in 1897) offered Experimental Physics rather than Descriptive. The gain in Experimental Physics is gratifying; for it shows that schools are becoming more generally equipped with laboratories, and that the "scratch" subject, Descriptive Physics, is dying a natural death. That any requirement in Physics is a stumbling-block to some candidates is shown by the fact that fifty-two candidates did not offer Physics at all. In Advanced Studies, as the table of their relative attractiveness makes clear, French and German have gained higher places than they held a year ago :—

1896.	1897.	1898.
1. Latin.	Latin.	Latin.
2. Greek.	Latin Composition.	Latin Composition.
3. Latin Composition.	Greek.	French.
4. Greek Composition.	French.	Greek.
5. French.	Greek Composition.	Greek Composition.
6. Solid Geometry.	Solid Geometry.	Solid Geometry.
7. Log. and Trig.	Log. and Trig.	German.
8. German.	{ German.	Log. and Trig.
9. Chemistry.	{ Chemistry.	Chemistry.
10. Algebra.	Algebra.	Algebra.
11. Analytic Geometry.	Analytic Geometry.	Analytic Geometry.
12. Physics.	Physics.	Physics.

The next table gives the details on which the foregoing table is based :—

Number of candidates offering	1896.		1897.		1898.	
	Per cent.		Per cent.		Per cent.	
Advanced Greek	325	61	332	58.1	312	55.42
Advanced Latin	441	83	474	83.1	464	82.42
Greek Composition	278	52.1	302	52.8	274	48.67
Latin Composition	317	59.4	354	61.9	335	59.5
Advanced German	85	16	93	16.2	141	25.04
Advanced French	256	48	303	53.06	315	55.95
Logarithms and Trigonometry	96	18	107	18.7	125	22.20
Solid Geometry	122	23	128	22.4	142	25.22
Analytic Geometry	16	3	18	3.1	26	4.62
Advanced Algebra	41	7.6	51	8.9	51	9.06
Advanced Physics	7	1.3	9	1.5	6	1.07
Advanced Chemistry	67	12.5	93	16.2	85	15.1

The next two tables show, for each study, the percentage of failure (*A*) in the complete records of the candidates, including the records of their successful Preliminary Examinations, and (*B*) in their records at Final Examinations only:—

(<i>A</i>)	1893.	1894.	1895.	1896.	1897.	1898.
ELEMENTARY STUDIES.						
English	13	9.5	9.2	8	10.9	8.7
Greek	7	6.5	5	9.7	5.4	7.86
Latin	7.5	4	2.5	6.8	4.5	6.75
German	25	22	21	23.3	24.9	17.07
French	8	7	3	9.8	6.2	3.54
History (Ancient)	10.5	6	5	4.8	9.09	9.41
History (Modern)	12	12.5	10.2	9.6	17.1	7
Algebra	10	12.5	14.8	17.4	16.04	14.56
Plane Geometry	20	25	15.6	23.1	15.02	26.29
Physics (Descriptive)	30	34	41	43.1	28.7	27.05
Physics (Experimental)	17	15	11.6	14.1	16.9	12.65
ADVANCED STUDIES.						
Greek	13	17	13	16.1	7.5	12.5
Latin	19	22	23.7	24.5	19.1	15.73
Greek Composition	27	17	19.3	21.6	22.8	16.06
Latin Composition	9	19	12.5	19.2	14.1	15.52
German	21	16.7	17.7	28.2	32.2	14.18
French	21	13	7.3	23.8	15.5	17.78
Logarithms and Trigonometry . .	40	23	36.3	42.7	27.1	41.60
Solid Geometry	32.5	33.5	24.6	40.2	33.5	26.76
Analytic Geometry	33.5	16.7	30	50	27.7	50
Algebra	11	26	23.5	36.6	54.9	43.14
Physics	50	33.3	0	57.1	55.5	16.67
Chemistry	3.5	4	7	14.8	16.1	15.29

(B) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	1897.	1898.		1897.	1898.
English	16.06	11.69	Greek	7.7	12.7
Greek	14.7	21.31	Latin	26.3	16.55
Latin	13.8	22.09	Greek Composition . .	33.4	25.58
German	36.8	26.77	Latin Composition . .	20.5	23.32
French	13.5	7.66	German	33.7	20
History (Ancient) . .	17.9	20.98	French	20.1	23.73
History (Modern) . .	22.66	10.61	Log. and Trig. . . .	30	43.7
Algebra	32.1	32.67	Solid Geometry . . .	37.06	28.36
Plane Geometry . . .	26.4	38.44	Analytic Geometry . .	33.3	52
Physics (Descriptive) .	30.	31.52	Algebra	59.5	47.83
Physics (Experimental)	15.9	14.92	Physics	55.5	16.67
			Chemistry	17.4	17.33

Five hundred and ninety-one candidates (thirty-two more than in 1897) took Preliminary Examinations; of whom four hundred and eighty-one (sixteen more than in 1897) received certificates:—

Number of candidates who received certificates for examinations occupying	1893.	1894.	1895.	1896.	1897.	1898.
Less than five hours . . .	2	7	6	2	8	9
Five hours	49	40	56	56	61	55
Six "	83	55	52	80	66	73
Seven "	90	99	75	74	83	84
Eight "	75	102	89	93	80	86
Nine "	58	74	63	64	102	86
Ten "	20	24	18	30	28	31
Eleven "	11	11	20	32	18	32
Twelve "	6	5	3	10	6	14
Thirteen " . . . . .	..	2	3	2	8	8
Fourteen " . . . . .	..	..	1	6	5	3
Fifteen " . . . . .	..	..	..	1	..	..
Sixteen " . . . . .	..	..	1	..	..	..
Received certificates . .	394	419	387	450	465	481
Failed	73	82	82	112	94	110
Total number of candidates	467	501	469	562	559	591

The percentages of failure in Preliminary Studies are, as usual, large : —

ELEMENTARY.			ADVANCED.		
	1897.	1898.		1897.	1898.
English	24.1	28.16	Greek	33.3	58.33
Greek	11.4	8.88	Latin	43.2	40.
Latin	21.	25.04	Greek Composition . .	21.8	37.59
German	31.9	20.09	Latin Composition . .	22.5	27.74
French	23.5	19.21	German	5.	11.11
History (Ancient) . .	21.4	21.01	French	21.2	21.90
History (Modern) . .	30.3	25.30	Log. and Trig.	40.	54.55
Algebra	24.6	24.14	Solid Geometry	45.4	36.11
Geometry	24.2	46.01	Analytic Geom	Not offered	75.
Physics (Descriptive) .	39.1	27.78	Algebra	100.	44.44
Physics (Experimental)	13.6	9.45	Physics	Not offered	00.
			Chemistry	18.1	27.27

In printing statistics of “Credits” won at the examinations for admission to College, I give (*A*) the “Credits” won this year at Final Examinations; (*B*) those won last year and this year by the Final candidates of this year; and (*C*) those won this year at Preliminary Examinations : —

(A) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	June.	Sept.		June.	Sept.
English	29	1	Greek	21	4
Greek	21	13	Latin	57	7
Latin	12	14	Greek Composition . .	5	1
German	6	12	Latin Composition . .	7	0
French	6	5	German	14	6
History (Ancient) . .	4	0	French	1	3
History (Modern) . .	2	0	Log. & Trig.	1	0
Algebra	16	9	Solid Geometry	14	0
Plane Geometry . . .	1	3	Analytic Geometry . .	1	0
Physics (Descriptive) .	4	0	Algebra	0	1
Physics (Experimental)	44	4	Physics	0	0
			Chemistry	9	3
	145	61		130	25

(B) ELEMENTARY.		ADVANCED.	
English	32	Greek	27
Greek	88	Latin	66
Latin	123	Greek Composition	14
German	44	Latin Composition	16
French	31	German	28
History (Ancient)	10	French	15
History (Modern)	3	Log. and Trig.	3
Algebra	109	Solid Geometry	15
Geometry	8	Analytic Geometry	3
Physics (Descriptive)	4	Algebra	1
Physics (Experimental)	60	Physics	1
		Chemistry	13
	512		202

(C) ELEMENTARY.		ADVANCED.	
English	7	Greek	1
Greek	59	Latin	3
Latin	73	Greek Composition	14
German	24	Latin Composition	4
French	17	German	8
History (Ancient)	12	French	3
History (Modern)	4	Log. and Trig.	0
Algebra	85	Solid Geometry	3
Geometry	3	Analytic Geometry	0
Physics (Descriptive)	1	Algebra	1
Physics (Experimental)	2	Physics	0
		Chemistry	1
	287		38

In 1898, for the first time, candidates might offer themselves for examination according to the "New Definitions" of certain old, established studies. The following table shows the number of persons examined according to the "New Definition" in each newly defined subject. Whatever Preliminary candidates and whatever candidates for the Scientific School may have followed the "New Definitions" are included here:—

NEW DEFINITIONS.

Elementary Greek	76	Advanced German	32
Advanced Greek	23	Elementary French	36
Elementary Latin	78	Advanced French	87
Advanced Latin	40	History*	21
Elementary German	40	Geometry	11

* In History, the presentation of a note-book is the only distinguishing mark of the new definition.

Two significant votes relating to Admission Examinations were passed by the Faculty in the autumn of 1897: —

“*Voted*, That examinations for admission to the College and the Scientific School, held outside of Cambridge, may be committed to the charge of suitable persons who hold no appointment in the University.”

“*Voted*, To amend the statement of the Catalogue in regard to admission examinations outside of Cambridge, so that it shall read: ‘The College will ordinarily conduct the admission examinations in June in any school or city where a sufficient number of candidates shall present themselves for examination, provided that the school or city be not within easy reach of one of the regular places of examination,’ etc.”

The principle of the first of these votes had already been recognized in the examinations at San Francisco and at Portland, Oregon; last summer it was applied to the examinations at Pasadena (a new place), Omaha, Denver, Kansas City, and Minneapolis. In accordance with the second vote, examinations were established at Pasadena, Youngstown, and Pottstown.

In the autumn of 1896, the Board of Overseers had suggested to the Faculty that every student admitted to College ought to write English so well as to make prescribed College courses in English Composition unnecessary. Years may pass before the College can realize this not quite Utopian dream; but it may at least hasten the realization by promptly relieving from prescribed English all those whose writing is good. This it is doing through three votes of the Faculty: —

“*Voted* (unanimously), That, in 1898 and thereafter until further notice, a candidate for admission who has passed the examination in Elementary English with a grade of *A* or *B* may take a second examination which, if passed with a grade of *A* or *B*, shall exempt him from the prescription of English *A* [Prescribed Freshman English].

“At this examination, which will be held in September only, a candidate will write one or more compositions on topics to be selected by him from a list comprising subjects in English Literature, the Classics, French and German authors, History, and Science. The examination will occupy two hours.”

“*Voted*, That a student who has attained Grade *A* or *B* in English *A*, taken as a prescribed course, shall be exempted from the prescription of English *B* [Prescribed Sophomore English] or English *BC* [Prescribed Second-Year English in the Lawrence Scientific School].”

“*Voted*, That students in English *C* [Prescribed Junior English] who have attained Grade *A* or *B* in their work up to the third forensic, may be excused from writing the third forensic.”

These votes have some bearing on the shortening of the College course, since they reduce in some cases the requirements for the degree.

The members of the Administrative Board of Harvard College for 1897-98 were: The Dean of the College; Professors Greenough, Bartlett, de Sumichrast, White, Davis, Channing, Grandgent, and Sabine; Doctors Torrey, Coolidge, Davenport, and Gulick; and Messrs. Nichols, Gardiner, and Hurlbut.

In the course of the year, the Board closed the probation of one Senior, one Sophomore, and four Freshmen; the Faculty dismissed, for disorderly conduct, one Freshman and one Special Student, who were afterward readmitted, and expelled one Senior for presenting a forged certificate. One Senior, one Junior, three Sophomores, five Freshmen, and three Special Students were required or persuaded to leave College; one Freshman was suspended for drunkenness; one Junior, one Freshman, and one Special Student were suspended for handing in illegitimate written work. The penalty of posting, which I have fully discussed in previous reports, was used early in the year; but, in deference to the strong feeling against it in the Faculty itself, a modified penalty was devised by a committee appointed for the purpose and was accepted by the Faculty. The name of the offending student and a statement of the offence are to be sent to every member of the Faculty; and announcement of the offence and of the penalty (without the offender's name) is to be made in the class in which the offence is committed. Any offence which, in the interest of the student public, should be made known may be made known by the Faculty at the request of the Dean of the College.

The Board entered on no new undertaking but spent much of its energy throughout the year in adjusting its relations with the Faculty of Arts and Sciences.

As usual, the Faculty, at the beginning of the academic year, granted leave of absence from the College to a considerable number of Seniors who, if the requirements for the degree are to be reckoned by courses only, had completed or nearly completed those requirements. More than half of the thirty-three students to whom this leave of absence was given had to their credit in College eighteen courses (the number required for the degree of A.B.); the others, mostly as members of the Law School or of the Medical School, were required to make good their deficiency in College work. These latter students, as has been said, are committed to an unfortunate service of two masters: they are not welcome in College elective courses, for there they seem half-hearted and perfunctory; they are not welcome in the Law School, for there they seem not quite

detached from the College and unable to give their full strength to the Law. Everybody recognizes the disadvantage of this divided allegiance, and is restless in consequence; but nobody has yet devised a remedy that commends itself to a large majority of the Faculty. Meantime we continue to feed the unpromising notion that College studies are to be counted off as rapidly as possible. I can only hope that before long we shall devise and accept a scheme which will do away with mixed allegiance, postponed A.B's, postponed A.M's, the admission of undergraduates to the Graduate School, and all other transitional devices that cheapen education.

A new objection to our always illogical practice of first letting a student complete the work for the A.B. in three years and then holding back the degree till the end of a fourth year has appeared in the requirements for admission to the New York Bar. An energetic man, it is said, may prepare himself for the New York Bar in two years; but no one may be admitted to that bar until two years after the actual date of his A.B. degree. If, then, a student of Harvard College crowds four years' work into three but not so successfully as to win the degree in that time, gets leave of absence for the fourth year, and fits himself in that year and in the year after it for the New York Bar, he must wait still another year, however well prepared he may be, since his College degree, though all the work required for it was done two years before, is dated, and was actually received, only one year before. The hardship of such a case is evident. For the sake of an early start in active life, the student has accepted all the disadvantages of a hurried College course, and at the end of his work is deprived by rules the reasons for which he does not see, of all the advantages.

Thirty-five students, against twenty-three in 1896-97, won a position in the First Group of holders of scholarships:—

CLASS.	NAME.	SCHOLARSHIP.	HOME.	SCHOOL.
'98	Frederick Sherman Arnold	Matthews	Poughkeepsie, N.Y.	Poughkeepsie Military Academy.
'98	William Wilson Baker	Ruluff Sterling Choate	Roxbury	Boston Latin School.
'99	Clement Lincoln Bouvé	Bowditch	Cambridge	Roxbury Latin School.
'98	Almy Morrill Carter	John Harvard	Woburn	Woburn High School.
'00	William Bayard Cutting	"	New York, N.Y.	Groton School.
'99	Wallace Brett Donham	Price Greenleaf	Rockland	Rockland High School.
'98	William Edwin Dorman	Bowditch	Lynn	Berkeley School, Boston.
'00	Durant Ford Drake	John Harvard	Boston	Boston Latin School.
'00	Arthur Drinkwater	"	Andover	Phillips Academy, Andover.
'99	John Wells Farley	Price Greenleaf	Cambridge	Roxbury Latin School.
'98	Edward Winslow Fox	John Harvard	Portland, Me.	Phillips Academy, Exeter.
'98	Samuel Tufts Frost	"	Roxbury	Boston Latin School.
'99	Archibald Victor Galbraith	Bowditch	Springfield	Springfield High School.
'98	Francis Paul Garland	Class of 1856	Somerville	Somerville Latin School.
'98	Ernest Theodore Gundlach	Morey	Chicago, Ill.	University of Chicago, Chicago, Ill.
'98	William Henry Paine Hatch	Matthews	South Hartford, N.Y.	Trinity College, Hartford, Conn.
'00	Charles Brooks Hersey	Price Greenleaf	Chelsea	Chelsea High School.
'98	Samuel Hudson Hollis	John Harvard	Lynn	Noble and Greenough's School.
'98	Carl Newell Jackson	Bowditch	Dorchester	Boston Latin School.
'98	Gustav Hermann Kinnicutt	John Harvard	New York, N.Y.	Cutler's (New York City) School.
'99	Welles Meriam	Price Greenleaf	Salem	Salem High School.
'00	William Morrow	"	Philadelphia, Pa.	F. B. Brandt (Private Tutor).
'98	Guy Newhall	Class of 1856	Lynn	Lynn Classical High School.
'99	Raymond Tasker Parke	John Harvard	Lynn	Lynn Classical High School.
'99	Langdon Pearse	"	Roxbury	Roxbury Latin School.
'98	Hazen Pierce Philbrick	"	Cambridge	Portsmouth (N. H.) High School.
'98	Beverly Randolph Robinson	"	New York, N.Y.	Cutler's (New York City) School.
'98	Herman Foster Robinson	"	New York, N.Y.	Cutler's (New York City) School.
'98	Ralph Stout	Richard Augustine Gambrill,	Brooklyn, N.Y.	Brooklyn (N.Y.) High School.
'99	James Butler Studley	Price Greenleaf	Rockland	Rockland High School.
'99	Carleton Ames Wheeler	"	Cambridge	Northampton High School.
'99	Edwin Bidwell Wilson	Bowditch	Cambridge	E. H. Wilson, Private School, Cam-
'99	Alvin Walter Wise	John Harvard	Chicago, Ill.	Cambridge Latin School. [bridge.
'99	Samuel Lamson Wonson	"	Everett	Gloucester High School.
'00	Henry Aaron Yeomans	"	Spokane, Wash.	Spokane (Wash.) High School.

Only twelve members of the First Group for 1896-97 were still undergraduates; and of these twelve eight reappear in the First Group for 1897-98. The thirty-five members of this group represent twenty-six preparatory sources: the Boston Latin School appears four times in the list; the Roxbury Latin School three times; Mr. Cutler's (New York) School, three times; the Lynn Classical High School twice; and the Rockland, Massachusetts, High School, twice. The number of states represented is the same as last year: Massachusetts contributes to the group twenty-three members; New York, seven; Illinois, two; Maine, Pennsylvania, and Washington, one each. The proportion from Massachusetts is larger than last year, Lynn alone contributing four students.

As the establishment of John Harvard Scholarships had proved successful, the Faculty voted to carry the principle of those scholarships to its logical conclusion:—

“Voted, On the recommendation of the Committee on Scholarships and Other Aids to Undergraduates, that the principle of the John Harvard Scholarships be extended to the Second Group of holders of scholarships.”

“Voted, On the recommendation of the same committee, that scholarships without stipend in the Second Group be known as ‘Harvard College Scholarships.’”

Early in the second half-year the work of many students was broken into by the excitement of threatening war, and later by war itself. At such times a College should do what it can to prevent inexperienced boys from rushing to battle with no thought of duty to parents; but a College should not attempt to cool a young man's love of his country, even though it may question whether the government of that country is wise. Nor should a College try to dull that eager spirit which is the glory of youth and too often of youth alone. The most resolute opponent of the war, the most cautious counsellor of young men, might well have felt some shame had there been in the front ranks no son of Harvard College, and must rejoice that the Alma Mater was represented well. Nor could any one talk much with the students who enlisted, without perceiving that beneath the spirit of adventurous daring which marks the youth of every nation not utterly degenerate was the conviction that, whenever and for whatsoever the nation called, her young men should “give freely and eagerly all that they had or hoped for to their country and to their fellow men.” It was one thing to offer a life for the Union in 1861, and another to offer it for a war with Spain in 1898: yet if offering life seemed a duty, the very absence of a cause that every man could recognize as great enhanced the self-sacrifice.

Twenty Harvard soldiers who would naturally have received the degree of A.B. had they finished the work of the year, received it while absent in army or navy service. No Faculty could safely give a professional degree, with a warrant of technical skill, to a student who had not taken his final tests; but the case is different with that degree which, though the first and the easiest to get, is always loved the best—the degree which admits a “youth of promise to the fellowship of educated men.”

One of the twenty soldiers who received the degree, Roy Walter Stover, and one undergraduate, Nathaniel Brown Adsit, have died in the service. Each did his work in College well and bore a good name; and each, among the hundreds of graduates and undergraduates, living and dead, who served in this war, has done his part to keep good the name of Harvard College.

L. B. R. BRIGGS, *Dean*.

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—During the academic year 1897–98, the conditions of the Lawrence Scientific School, so far as they need mention in this report, were as follows:—

The condition of the School was satisfactory both as regards the numbers registered and the grades attained by the students. As will be seen from the subjoined table, the rate of increase established in the preceding year has been nearly maintained, while the proportion of persons registered as special students has notably declined. Of those now ranked as unmatriculated, the greater number are so placed because they are not candidates for a degree, but are pursuing certain courses as preparation for special employments.

REGISTRATION BY CLASSES.

	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898 to Nov. 1
Fourth-year Class . .	4	1	6	3	7	11	20	29	30	30	37	42
Third-year Class . .	0	1	1	7	9	9	30	39	27	41	44	60
Second-year Class . .	1	0	5	12	13	32	47	45	73	92	106	104
First-year Class . . .	1	4	15	13	19	48	45	91	106	129	132	150
Specials	14	29	38	53	70	81	138	104	104	76	91	62
Total	20	35	65	88	118	181	280	308	340	368	410	418

The condition of the several classes is, as may be seen by comparing the number of students in the successive years, not altogether satisfactory; since it is evident that too few are able to win promotion from year to year, and finally to obtain the degree. The rules of the Administrative Board concerning promotions are severe, and have been strictly enforced, with the result that only about one third of those who are admitted to regular standing are allowed to graduate. In some measure, the relatively small proportion of the graduating to the entering class is due to the fact that the students in this School have never been accustomed to attach the same importance to a diploma as do those in the other departments of the University,

or in other colleges. The greater number are seeking an education which may fit them for active life. These men are always ready to weigh the value of some advantageous position offered them against the profit they may expect to find in further schooling. As the average age of the men in the School is considerably greater than that of College students, this course is perhaps not to be condemned.

As regards the entrance examinations, the following table exhibits the important changes which have taken place in the last year. It will be observed that there has been a tolerably steady increase in the number of candidates at the preliminary and the final examinations. Taken in connection with the table showing the attendance, it will be observed that there is not a very clear connection between the number presenting themselves for the entrance tests and those enrolled. It is evident that some students use the entrance examinations to prove their accomplishment in the fitting schools. From all that has been learned, the certificate of admission into this School is very rarely used to secure a place in any other. A considerable number of those admitted come from other reputable institutions. In practically all instances they are not admitted *ad eundem*, but have to be graded as of a lower class than that to which they had elsewhere belonged.

REGISTRATION FOR ADMISSION EXAMINATIONS.

	Preliminary.	Final.	Total.
1893	8	63	71
1894	34	97	131
1895	51	171	222
1896	37	221	258
1897	59	184	243
1898	73	184	257

It is the purpose of the Administrative Board to scrutinize the established courses of study in order to find out how to lighten the required work, which in some of the programmes is evidently too heavy for any but the more vigorous. Much has already been done to diminish the term work in the Engineering programmes by placing all the courses of field surveying and shopwork in the summer vacation. Heretofore the course in Surveying has been carried on partly in term time and partly in the long vacation: hereafter it will be given altogether in the months of August and September. This reduction of the free time of the year by almost two months will probably seem a deprivation alike to students and their parents; but as the work is done in the open air in a very wholesome place, it will

not add to the strain the students have to endure. Its effect in diminishing the tax on their time during the regular terms will be very advantageous.

The call for soldiers to serve in the war against Spain led to the enlistment of twenty-five of the 380 students who were in the School at the time when hostilities began. The Dean and Secretary, both of whom had in their youth some experience in caring for men, endeavored to persuade all those who were evidently not fit for military duty to adhere to their course of education. The result was that fewer went than would otherwise have gone. There have fortunately been no deaths among those who enlisted, though hard service came to many of them, and some are still invalided. It is not unlikely that the care which for some years has been given to the physical condition of the young men served to fit them for the trials of a soldier's life. The proportion of those who enlisted from the Lawrence School was rather greater than from other departments of the University. It was about eight per cent. of the whole number, or about six times as great as it would have been if the calls had been filled by drafts on the able bodied men of the country.

With one exception, the needs of the several departments of the School remain as they were described in the last report made to you. The work in Mining and Metallurgy has been well provided for by the allotment to the department of the edifice on Jarvis Field, formerly known as the Carey Building. The structure is now being remodelled for its new uses. It will afford room for the Mining and Metallurgical laboratories, as well as two good lecture rooms and a library room. Until the students in this department shall exceed one hundred, these quarters are likely to suffice for the needs of the technical work.

The courses in Civil, Mechanical, and Electrical Engineering are now sorely pressed for room; especially the classes in Drawing, and those in laboratory work in Electricity. So, too, in Architecture the quarters, though in some regards satisfactory, are remote from the central library and from the Fogg Museum. Unless some provision is soon made for the accommodation of the growing classes in Engineering, it may be necessary to exclude from them the students who are registered in the College. This step would be most regrettable, for the reason that it would tend to retard the development of a system, now well advanced, by which students of the College freely share in the instruction given at the School, excepting some of the more technical work, thus making themselves ready for graduation in Science as well as in Arts at the end of five years of study in the

two schools. If the University is to keep what it has gained of profitable relation to Engineering Science, and to extend its work by providing the country with engineers of the highest order of training, it must need meet these demands for the better accommodation of students in engineering.

During the year a change has been made in the programme of the four years' course in General Science. Students following this programme will hereafter be required to pursue designated studies for the first year only. In the three subsequent years each student will follow a course of study selected by himself and approved by that Division or Department in which he is registered. These fields of work as now designated are as follows : Physics, Chemistry, Geology, Biology, Civil Engineering, Electrical Engineering, Mechanical Engineering, Mining and Metallurgy, and Architecture. The object of this change is to provide for a wide yet carefully guarded method of election, the choice being made in conference with advisers who are competent to pronounce judgment as to the adequacy of the plan of study which the student proposes to follow. It is believed that by this method the adaptation of this general course to the varied needs of those who enter it will be much improved. It gives, moreover, an opportunity for youths to ascertain, in a tentative way, their fitness for peculiar groups of studies. It is probable, for instance, that a young man who enters in General Science, taking a course that is satisfactory to the Department of Engineering, may in time find that he desires the full professional training in that subject, in which case, possibly without the loss of much time, he may be able readily to attain that end.

The discipline of the School is good : it has been easily maintained, for it has had the sympathetic coöperation of nearly all the students. During the year the penalties inflicted have been as follows :—

27 students were put on probation for neglect of work ;

73 students were put on probation at the end of the term for being dropped from their classes ;

8 probations were closed for continuous neglect ;

1 student was suspended for cheating at an examination.

It should be noted that the penalty of probation is much more freely used in this School than in the College. It is applied not only to all men who have not been advanced at the end of the year because of some deficiencies in their studies, but also to all who at any time appear likely thus to fail. It is intended to indicate to the student to whom it is applied that he is not adequately meeting the requirements of the School.

The new requirements for admission to the School begin to go into operation in 1899. It may be expected that the immediate effect of the system will be to somewhat reduce the attendance. The system will, however, have the advantage that it will tend to make an end of the competition for students with other technical schools, leaving to this School those only who because of their native ability or good training are able to meet a test substantially equivalent to that required for entrance to Harvard College. The year or more of time thus saved for work such as should be done in a University will enable the students of this School to attain a broader culture than they can now win here or elsewhere. This gain will repay any loss of numbers that the new requirements may entail.

N. S. SHALER, *Dean.*

THE GRADUATE SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — As Dean of the Graduate School, I have the honor to present my report on the condition of the School in the academic year 1897-98.

The members of the Administrative Board for the year were Professors Norton, Farlow, Jackson, B. O. Peirce, von Jagemann, Hart, Ashley, Kittredge, and Münsterberg, and the Dean of the School. Professor Münsterberg took the place of Professor Smith, who was absent in Europe. The Secretary of the Board was Professor Kittredge.

The Board held nine meetings, on an average one a month with additional meetings in October and June. The business of the Board consisted chiefly of the regulation of the admission of students to the School, of the approval of courses for the degree of Master of Arts, of action upon various petitions from students, and of the consideration of questions of policy and practice in regard to the higher degrees. Certain votes passed by the Board will be given on a later page. No cases of discipline have come before the Board within the last three years.

The character and condition of the School are set forth from various points of view in the following Tables, which show in succession : —

- I. Number and classification of students (resident and non-resident; students doing full or partial work; fields of study; length of connection with the School; holders of Bachelor's and of the higher degrees): 1895-96, 1896-97, 1897-98.
- II. Colleges and Universities represented, with Degrees held: 1897-98.
- III. Birthplaces of Graduate Students: 1895-96, 1896-97, 1897-98.
- IV. Recommendations for Degrees in 1896, 1897, and 1898.
- V. Departments in which the Higher Degrees were conferred in 1898.
- VI. Age of Masters of Arts, Masters of Science, Doctors of Philosophy: 1898.
- VII. Fellowships and Scholarships: numbers of applicants and appointees in 1896-97, 1897-98, and 1898-99.
- VIII. Recipients of higher non-professional degrees from Harvard University (on examination): 1873-98.
- IX. Doctors of Philosophy and of Science, classified according to the subjects in which the degrees have been conferred: 1873-98.

STUDENTS.

The number of students registered in the School in 1897-98 was two hundred and ninety-three. This does not include a few persons who were in the School for a period of less than one month at the opening of the year; they either withdrew or entered another department of the University.

TABLE I. — NUMBER AND CLASSIFICATION OF STUDENTS.

	1895-96.	1896-97.	1897-98.
Resident Students doing full work in the School for the whole academic year	175	194	171
Resident Students not doing full work or not work- ing for the whole year as resident students . . .	105	96	107
	— 280	— 290	— 278
Non-Resident Students holding fellowships	13	14	15
Non-Resident Students not holding fellowships . .	6	2	—
	— 19	— 16	— 15
Students whose studies chiefly lay in *			
I. Semitic Languages and History	6	4	2
II. Ancient Languages (Classics and Sanskrit)	39	37	39
III. Modern Languages (including English Lan- guage and Literature and Comparative Literature)	74	59	71
IV. Philosophy (including Education and Teach- ing)	42	44	45
V. History and Political Science	55	58	43
VI. The Fine Arts (including Architecture) . .	2	2	1
VII. Music	0	0	1
VIII. Mathematics	23	24	18
IX. Physics	8	12	16
X. Chemistry	12	17	17
XI. Natural History	29	31	31
XII. American Archaeology and Ethnology . . .	1	1	4
Unclassed Students	8	7	5
	— 299	— 306	— 293
First-year Students	157	156	149
Second-year Students	81	71	73
Third-year Students	36	49	43
Fourth-year Students	18	21	21
Students in a fifth or later year	7	9	7
	— 299	— 306	— 293
A.B.'s and S.B.'s of Harvard University and of no other institution	109	112	90
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard Uni- versity	38	36	41
Students not holding the Harvard degree of A.B. or S.B.	152	158	162
	— 299	— 306	— 293
Students holding the Harvard degree of A.M., Ph.D., or S.D.	91	95	96
Students holding the Harvard degree of A.B. or S.B., but not of A.M., Ph.D., or S.D.	88	89	80
Students holding no Harvard degree in Arts, Phi- losophy, or Science	120	122	117
	— 299	— 306	— 293

* For detailed statistics as to the number of Graduate Students enrolled in the various courses of instruction offered by the Faculty of Arts and Sciences, see the Report of the Dean, pp. 64-92.

Admission to the Graduate School is ordinarily granted to holders of the Bachelor's degree of good colleges, and to a few other persons of maturity who give evidence of an equivalent education. Recent graduates of colleges where the course of study would not secure admission at least to the Senior class of Harvard College, with or without conditions, and men who come from unknown institutions, are commonly not admitted to the Graduate School, but are expected to seek admission as Undergraduates, or as Special Students, in Harvard College. The colleges and universities that were represented in the School in 1898 are given in Table II.

The foregoing Table exhibits the usual classification of the Students of the School, and is given for convenience of comparison for the three successive academic years 1895-96, 1896-97, 1897-98.

Of the Resident Students two hundred and forty-one were in attendance throughout the whole year. Of this number one hundred and seventy-one—including all holders of fellowships and scholarships—were engaged in what is defined as a complete year of work (four courses of advanced grade or their equivalent), or were doing a larger amount of work. Seventy of the number in residence throughout the year were doing partial work, which ranged from half a course (in two instances) to three and one-half courses. Several of this class were engaged in teaching or in other professional occupations in the vicinity of Cambridge, and were devoting only a part of their time to study in the Graduate School. Some of them had no intention of becoming candidates for a degree. Others hoped to obtain one of the higher degrees for two or more years of work upon completing an approved programme of studies. Of the remaining thirty-seven Resident Students twenty-one entered after November 1, 1897, and sixteen withdrew before the close of the year.

It will be observed that for the first time since the establishment of the Graduate School the number of students is less than in a preceding year. This decrease in 1897-98 was confined to New England men and to graduates of Harvard College. The large increase in the current academic year (1898-99), with a registration at this date of three hundred and twenty, shows that this loss was only temporary.

The class of Non-Resident Students included all holders of traveling fellowships and other fellowships held by students away from Cambridge; in 1897-98 it included no other persons. The privilege of Non-Resident membership is carefully guarded. It is reserved for men who have already been in residence at the University for a suitable time. The work of Non-Resident Students, whether holders

of fellowships or not, is carried on under the constant supervision of the Departmental committees under which the students are working, and all Non-Resident Students are required to keep in communication with the Dean of the School.

The second division of this Table indicates the several fields of learning and science in which the work of the students lay. Classification here is not always easy, since in the case of many students the work of each lies, in part at least, in more than one Department—a fact that cannot be noted in the Table. Detailed information as to the choice of studies of Graduate Students in the several Departments may be obtained by a reference to the statistics given in the Report of the Dean of the Faculty of Arts and Sciences. The steady attraction which several of the great departments of learning exercise upon advanced students is apparent from the Table. In 1894-95 the subjects, as arranged according to the number of students that pursued them, were —

Modern Languages,	Chemistry,
History and Political Science,	Physics,
Philosophy,	Semitics,
Classics and Sanskrit,	Fine Arts,
Natural History,	Music,
Mathematics,	American Archaeology and Ethnology.

This has been, at least for the first eight subjects in the list, the order in each successive year since 1894-95 — 1895-96, 1896-97, 1897-98 — the only change being in the relative place of the last four subjects in the list.

An inspection of the next division of Table I shows that the proportion of students remaining in the School for the second and third year has not appreciably changed. As in the past, about one-half of the members of the School have been in the School but one year, and about two-thirds of these obtained the degree of Master of Arts at the close of the year. About one-quarter have been in the School for two years, while about the same number have been in it for three or more years. The proportion of men, however, who proceed to the higher degrees is constantly increasing.

The fourth division of Table I shows in general the extent to which the School draws its membership from graduates of other institutions. For detailed information upon this point Table II should be consulted. About sixty per cent. of the students of the School held a degree from Harvard University, and of these about forty-three per cent. of the whole number were Bachelors of Arts, and about two per cent. were Bachelors of Science.

Tables II and III are mutually supplementary and exhibit the extent to which different parts of the country and different higher institutions are represented in the Graduate School. In the former are given the various colleges and universities, and the professional and technical schools, whose graduates were members of the School in 1897-98, together with the degrees these persons held and the number of different persons from each institution.*

These Tables show that Harvard University continues to draw its Graduate Students from the whole country without distinction, from Canada, and to a certain extent from Europe. The representation from Canada has decidedly increased, being double what it was in 1896-97. The colleges and universities that were represented by five or more persons are (arranged in order according to the number of their graduates in the School): Harvard University; University of Kansas; Brown University; University of California, Dartmouth College, and the University of Vermont, with the same number; Amherst College, Northwestern University, Oberlin College, Princeton University, University of Toronto, Wesleyan University, and Western Reserve University, with the same number. Upon comparison with the record of 1896-97 it will appear that the representation of Brown University, of Princeton University, and of the University of Toronto has distinctly increased. Eight members of the School hold degrees from European universities, of whom three were from French, three from German, and two from British, universities. Sixteen students had previously graduated from Canadian universities or colleges. The most common degree was that of Bachelor of Arts, —next that of Master of Arts. Of the three hundred and fifteen Bachelors two hundred and sixty were Bachelors of Arts, and twenty-nine were Bachelors of Science. There were six Masters of Science and fifteen Doctors of Philosophy in the School, but no Doctors of Science. The membership of the School contained very few holders of professional degrees, —less than fifteen.

* Nine of the colleges and universities upon this list were further represented in Harvard College by recent graduates (twelve in number), who preferred to enter the Senior class as candidates for the degree of Bachelor of Arts rather than enter the Graduate School. It is the policy of the Administrative Board to advise candidates for the degree of Bachelor of Arts, especially if they are recently graduated, to seek admission to the Senior class.

[illegible]

* See note on page 133.

TABLE II. — CONTINUED.

	A.B.	S.B.	Litt.B.	Ph.B.	A.M.	S.M.	Ph.D.	D.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Midland College, Kan.	1	.	.	.	.	.	.	.	.	.	1	1
Minnesota, University of	.	.	.	1	.	.	.	.	.	.	1	1
Mississippi College	1	.	.	.	.	.	.	.	.	.	1	1
Mt. Allison University, N. B.	3	.	.	.	.	.	.	.	.	.	3	3
Nebraska, University of	1	.	.	.	1	.	.	.	.	.	2	1
New Brunswick, University of	1	.	.	.	.	.	.	.	.	.	1	1
North Carolina, University of *	1	.	.	1	.	.	.	.	.	.	3	2
Northwestern University, Ill.	2	.	.	2	1	.	.	.	.	.	5	5
Oberlin College, O.	4	.	.	1	2	.	.	.	.	.	7	5
Ohio Wesleyan University	3	1	.	.	2	.	.	.	.	.	6	4
Paris, Faculté des Lettres de *	.	.	.	1	.	.	.	.	.	.	3	1
Pennsylvania, University of	.	1	.	.	.	.	.	.	.	.	1	1
Princeton University, N. J.	5	.	.	.	1	.	.	.	.	.	6	5
Rennes, Académie de, France	.	.	.	1	.	.	.	.	.	.	1	1
Rochester, University of, N. V.	1	.	.	.	.	.	.	.	.	.	1	1
Rocky Mountain University, Col.	.	.	.	.	.	.	.	.	1	.	1	1
South Carolina College	1	.	.	.	1	.	.	.	.	.	2	1
Strassburg, University of, Germany	.	.	.	.	.	.	1	.	.	.	1	1
Syracuse University, N. Y.	1	.	.	.	.	.	.	.	.	.	1	1
Texas, University of	.	2	.	.	1	1	.	.	.	.	4	2
Toronto, University of, Ont.	5	.	.	.	2	.	.	.	1	.	8	5
Trinity College, Conn.	2	.	.	.	.	.	.	.	.	.	2	2
Tufts College, Mass.	2	.	.	.	1	.	.	.	.	.	3	2
Ursinus College, Pa.	1	.	.	.	1	.	.	.	.	.	2	1

Vanderbilt University, Tenn.	2	1	1	1	2	4	2
Vermont, University of	5	1	1	1	1	6	6
Victoria University, Ont.	1	1	1	1	1	2	1
Wabash College, Ind.	1	1	1	1	1	2	1
Washington University, Mo.	1	1	1	1	1	2	2
Washington and Jefferson College, Pa.	1	1	1	1	1	1	1
Washington and Lee University, Va.	1	1	1	1	1	3	1
Wesleyan University, Conn.	4	1	1	1	1	1	1
Western Reserve University, O.	3	1	1	1	1	8	5
Worcester Polytechnic Institute, Mass.	1	1	1	1	1	7	5
Yale University, Conn.	2	1	1	2	1	1	1
Zürich, University of, Switzerland	1	1	1	1	1	5	4
Total	260	29	8	14	143	15	371
Non-Graduates and other Graduates (see note)						5	26
Deduct for names counted twice or thrice							397
							104
							293

* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: Agrégé d'Anglais et Licencié-ès-lettres, Faculté des Lettres, Paris; C.E. (2), Allegheny College, Pa., and Dartmouth College, N. H.; E.B. (2), Union College, N. Y., and Pennsylvania State Normal School, West Chester; Heb.B., Hebrew Union College, O.; M.E., Stevens Institute of Technology, N. J.; Ped.D., Wooster University, O.; Pharm-Gr., Chicago College of Pharmacy, Ill.; Ph.M., University of North Carolina; S.D.B., Missouri State Normal School, Warrensburg.—The University of the City of New York and the University of Virginia were each represented by one Non-Graduate; Harvard, by eight (mostly past Seniors on leave of absence from Harvard College, who had completed wholly or in large part the requirements for the A.B. degree). There were, further, in the School one Graduate each of Andover Theological Seminary, Mass.; the New Church Theological Seminary, Mass.; and the Southern Baptist Theological Seminary, Ky.; and two Graduates of the United States Naval Academy, Md.

TABLE III. — BIRTHPLACES OF GRADUATE STUDENTS.

	1895-96.	1896-97.	1897-98.
Students born in the New England States	131	141	121
Students born in other Northern States east of the Mississippi River	85	86	89
Students born in Southern States east of the Mississippi River	19	13	19
Students born in States west of the Mississippi River . .	25	25	26
Students born in the Dominion of Canada	16	17	18
Students born in other foreign countries	23	24	20
Total number of students	299	306	293

This Table shows that only about forty per cent. of the students were of New England birth, and that in 1897-98, as compared with previous years, the proportion of students born in other parts of the United States, and in Canada, has slightly increased.

The School has lost one member by death within the present year. Mr. Ralph Burnell Calhoun Hicks, a distinguished student of Sanskrit, and the holder of a University scholarship, died of consumption on February 7, 1898.

The late Cuban War affected only slightly the membership of the School. Before the close of the year eight registered students entered the military or naval service of their country, namely, Messrs. H. Bancroft, B. R. Curtis, A. S. Cushman, F. Heilig, W. J. Miller, S. Paine, T. D. Parker, and M. B. Peugnet. Of these Mr. Bancroft completed his studies sufficiently to be recommended for the degree of Master of Arts at Commencement, and Mr. Cushman was promoted to the degree of Doctor of Philosophy at the same time.

DEGREES.

One hundred and thirty-eight persons were recommended* for the higher degrees at Commencement, 1898. The details are found in the following Table, which gives, first, the number of students in

* The number of persons recommended, as here given, and that of the men who actually receive the degree, as published on the Commencement Programme and in the Annual Catalogue, do not always agree. In each year a few of the candidates recommended do not, for various reasons, receive the degree at once. Ordinarily the degree is in these cases conferred in a later year, "as of" the year in which the recommendation was made.

the Graduate School recommended by the Faculty of Arts and Sciences for any degree, and the number of other students recommended for the degree of Master of Arts in the three years 1896, 1897, and 1898. In the second part of the Table, all persons recommended for the higher degrees (A.M., S.M., Ph.D., and S.D.) are classified with reference to their previous graduation as Bachelors of Arts or of Science.

The degree of Master of Science was conferred for the first time at Commencement, 1898.

TABLE IV. — RECOMMENDATIONS FOR DEGREES IN 1896-98.

	1896.	1897.	1898.
Graduate students recommended for A.B.	16	14	18
Graduate students recommended for A.M.	83	94	91
Graduate students recommended for S.M.	0	0	5
Graduate students recommended for Ph.D.	18	25	25
Graduate students recommended for S.D.	0 117	1 134	0 139
<hr/>			
College Seniors of a preceding year, recommended for A.M. on work done in senior year	7	6	9
Professional students recommended for A.M. on special courses of study	8	13	7
Professional students recommended for Ph.D. on special courses of study	0	0	1
Professional students recommended for A.M. with a professional degree	0 15	1 20	0 17
<hr/>			
Total of the above list	132	154	156
Deduct Graduate students receiving A.B.	16	14	18
<hr/>			
Total number recommended for A.M., S.M., Ph.D., and S.D.	116	140	138
<hr/>			
Harvard Bachelors of Arts or Science, not pre- viously graduated elsewhere	50	57	42
Harvard Bachelors of Arts or Science, previously graduated elsewhere	21	24	21
Students not Harvard Bachelors of Arts or Science	45 116	59 140	75 138
<hr/>			

The next Table indicates the departments or fields of study in which chiefly lay the work of the candidates for the degree of Master of Arts, of Master of Science, and of Doctor of Philosophy in 1898.

TABLE V.—DIVISIONS AND DEPARTMENTS IN WHICH THE HIGHER DEGREES WERE TAKEN IN 1898.

DIVISION.	DEPARTMENT.	DEGREES.		
		A.M.	S.M.	PH.D.
I. Semitic Languages and History				1
II. Ancient Languages :				
Indo-Iranian Languages				
Classical Philology		11		3
Total in Ancient Languages		— 11		— 3
III. Modern Languages :				
English		14		5
Germanic Languages and Literatures		5		
French		2		
Italian and Spanish				
Germanic and Romance Philology		1		1
In more than one Department		8		
Total in Modern Languages		— 30		— 6
IV. History and Political Science :				
History and Government		15		3
Political Economy		5		
Total in Hist. and Political Sci.		— 20		— 3
V. Philosophy		11		3
[Education and Teaching		1]		
VI. Fine Arts.				
VII. Music.				
VIII. Mathematics		4	1	2
IX. Engineering		1	1	
X. Physics		3	1	
XI. Chemistry		4		3
XII. Biology :				
Botany		3		1
Zoölogy		5	1	2
Total in Biology		— 8	1	— 3
XIII. Geology :				
Geology and Geography		3	1	
Mineralogy and Petrography				
Total in Geology		— 3	— 1	
XIV. American Archaeology and Ethnology				1
In more than one Division		5		
Professional Students :				
Divinity School		5		1
Law School		1		
Medical School		1		
Total		107	5	26

The degree of Doctor of Philosophy was conferred upon the twenty-six persons named below. With each name are given the special field in which the degree was taken, the candidate's academic history, and his present occupation.

Philology.

CLARENCE POWERS BILL.

Classical Philology. — A.B. (*Adelbert Coll. of Western Reserve Univ., O.*) 1894, A.M. (*Western Reserve Univ., O.*) 1895, A.M. 1896. — Res. Gr. Stud., 1895-98.
Now Instructor in Latin, Adelbert College, Western Reserve University, O.

WILLIAM SARGENT BURRAGE.

Classical Philology. — A.B. 1892, A.M. 1895. — Res. Gr. Stud., 1894-97.
Now residing in Cambridge.

HERBERT MÜLLER HOPKINS.

Classical Philology. — A.B. (*Columbia Univ., N.Y.*) 1893, A.M. 1896. — Res. Gr. Stud., 1895-98.
Now Instructor in Latin, University of California.

JOHN WESLEY RICE.

Biblical and Patristic Greek. — A.B. 1891, D.B. (*Yale Univ., Conn.*) 1895, A.M. 1896, D.B. 1897. — Res. Gr. Stud., Harvard Divinity School, 1895-96, 1897-98.
Instructor in Biblical Literature, Vanderbilt University, Tenn.

NEIL CONWELL BROOKS.

Germanic Philology. — A.B. (*Univ. of Kansas*) 1890, A.M. 1896. — Res. Gr. Stud., 1895-98.
Instructor in German, University of Illinois.

CHARLES HEYWARD BARNWELL.

English Philology. — A.B. (*South Carolina Coll.*) 1887, A.M. (*ibid.*) 1888, A.M. 1893. — Res. Gr. Stud., 1892-94, 1897-98.
Instructor in English, Adelbert College, O.

GUSTAVUS HOWARD MAYNADIER.

English Philology. — A.B. 1889, A.M. 1890. — Res. Gr. Stud., 1889-90 and 1896-98.
Assistant in English at this University,

WILLIAM ALLAN NEILSON.

English Philology. — A.M. (*University of Edinburgh, Scotland*) 1891, A.M. 1896. — Res. Gr. Stud., 1895-98.
Associate in English, Bryn Mawr College, Pa.

GEORGE RAPAIL NOYES.

English Philology. — A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98.
Now studying Slavic Languages, in St. Petersburg, as John Harvard Fellow.

ASHLEY HORACE THORNDIKE.

English Philology. — A.B. (*Wesleyan Univ., Conn.*) 1893, A.M. 1896. — Res. Gr. Stud., 1895-98.
Instructor in English, College for Women, Western Reserve University, O.

ISMAR JOHN PERITZ.

Semitic Philology. — Gr. (*Drew Theological Sem., N.J.*) 1887, A.M. 1893. — Res. Gr. Stud., Harvard Divinity School, 1892-94. Res. Gr. Stud., 1894-95; Non-Res. Stud., 1895-96.
Professor of Semitic Languages and Archaeology, Syracuse University, N.Y.

Philosophy.

JAMES EDWIN LOUGH.

Psychology. — A.B. (*Miami Univ., O.*) 1891, A.M. (*ibid.*) 1894, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1893-96.
Now Instructor in Philosophy, State Normal School, Oskosh, Wis.

WILLIAM PEPPERRELL MONTAGUE.

Metaphysics. — A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1896-98.
Assistant in Philosophy at this University.

LEON MENDEZ SOLOMONS.

Psychology. — S.B. (*Univ. of California*) 1893, S.M. (*ibid.*) 1894. — Res. Gr. Stud., 1894-96, 1897-98; Non-Res. Stud., 1896-97.
Instructor in Psychology, University of Wisconsin.

History.

SAMUEL BANNISTER HARDING.

American History. — A.B. (*Indiana Univ.*) 1890, A.M. 1894. — Res. Gr. Stud., 1893-95.
Associate Professor of European History, Indiana University.

JAMES SULLIVAN.

Political Theories in the Middle Ages. — A.B. 1894, A.M. 1895. Res. Gr. Stud., 1894-95; Non-Res., 1895-97.
Now Assistant in Government at this University.

ARTHUR MAYER WOLFSON.

Italian History during the Middle Ages and Renaissance. — A.B. 1893, A.M. 1896. — Res. Gr. Stud., 1895-98.
Now Instructor in History, Boys' High School, New York, N.Y.

Mathematics.

HARRY YANDELL BENEDICT.

Celestial Mechanics. — S.B. (*Univ. of Texas*) 1893, A.M. (*ibid.*) 1893. — Res. Gr. Stud., 1895-98.
Student of Mathematics in Cambridge.

DONALD FRANK CAMPBELL.

Pure Mathematics. — A.B. (*Dalhousie Univ., N.S.*) 1890, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98.
Now Instructor in Mathematics at this University.

Chemistry.

WILLIAM BURDELL BENTLEY.

Organic Chemistry. — A.B. 1889, A.M. 1890. — Res. Gr. Stud., 1889-91.
Professor of Physics and Chemistry, Arkansas Industrial University.

ALLERTON SEWARD CUSHMAN.

Inorganic Chemistry. — S.B. (*Worcester Polytechnic Inst., Mass.*) 1888, A.M. 1897. — Res. Gr. Stud., 1896-98.
Commissary of Subsistence, with rank of Captain, U. S. Volunteers.

CHARLES AUGUSTUS SOCH.

Organic Chemistry. — A.B. 1894. — Res. Gr. Stud., 1895-97.

Instructor in Chemistry in the Manual Training School of Washington University, Mo.

Biology.**FRANK WATTS BANCROFT.**

Zoölogy and Physiology. — S.B. (*Univ. of California*) 1894, S.M. (*ibid.*) 1896, A.M. 1897. — Res. Gr. Stud., 1896-98.

Now studying Zoölogy, in Berlin, as Parker Fellow.

JOSEPH WILLIAM BLANKINSHIP.

Botany. — A.B. (*Drury College, Mo.*) 1889, A.B. 1894, A.M. 1896. — Res. Gr. Stud., 1894-98.

Now Professor of Botany, Montana State College.

FREDERICK CLAYTON WAITE.

Zoölogy. — LITT.B. (*Adelbert Coll. of Western Reserve Univ., O.*) 1892, A.M. (*Western Reserve Univ.*) 1894, A.M. 1896. — Res. Gr. Stud., 1895-98.

Instructor in Botany and Zoölogy in the Mixed High School, New York, N. Y.

American Archaeology and Ethnology.**FRANK RUSSELL.**

Somatology. — S.B. (*State Univ. of Iowa*) 1892, S.M. (*ibid.*) 1895, A.B. 1896, A.M. 1897. Res. Gr. Stud., 1895-98.

Now Instructor in Anthropology at this University.

Of these twenty-six Doctors of Philosophy, twenty-one — four-fifths of the whole number — are now engaged in the active pursuit of a profession, and may be regarded as having completed their preparatory professional studies. All of the twenty-one are teachers either in colleges or universities (four are professors, eleven are instructors, and three are assistants), or in secondary institutions (three). Five of these teachers are in the service of this University, two as instructors and three as assistants. Three of the twenty-six Doctors of Philosophy are continuing their studies, two of them being holders of travelling fellowships. The permanent occupation of two only is as yet uncertain.

With respect to the academic history of these men it should be noted that all save two are holders of a Harvard degree (A.B. only, one; A.M. only, eleven; A.B. and A.M., twelve). All save one hold a degree in Arts (A.B. or A.M.). From other institutions there were five S.B.'s, three of whom were also Harvard A.M.'s; one Litt.B., who was also a Harvard A.M.; nine A.B.'s, three of whom were also Harvard A.B.'s and A.M.'s, and five of whom were Harvard A.M.'s only. No S.B.'s of Harvard University were among the candidates for the degree.

In the case of nine candidates five or more years had elapsed since the candidate had received the Harvard A.B. or had been admitted to equivalent standing. Three were A.B.'s (or its equivalent) of two years' standing. Six were A.B.'s of three years' standing, and eight were A.B.'s of four years' standing. The average time that had elapsed in the case of the candidates in 1898 between their A.B. and their Ph.D. is thus, omitting extreme cases of five years or more, very nearly three years.

This period — three years — is also approximately the average period of resident study at this University of these men. Fifteen

were Resident Students for three years; six for two years; one for one year (with a second year of Non-Resident study); and four were Resident Students for four years. These statistics, which are similar to those of other years, show clearly that though the technical requirement for the degree of Doctor of Philosophy is two years of graduate study, in actual practice candidates find it necessary to devote at least three years to such study, and that nearly all candidates prefer to spend these three years of study at this University.

Of the one hundred and two men who received the degree of Master of Arts in 1898, forty-two are continuing their studies at this University — thirty-six in the Graduate School, six in the professional schools; five are students in other universities; thirty-two are teaching—four as professors and six as instructors in colleges, twenty-two in secondary schools. The remaining twenty-three are nearly all engaged in business or in professional work. Since the permanent occupations of the Masters of Arts of 1898 are for the most part as yet undetermined, further statistics on this point are not significant. The subjoined Table, however, as an indication of the maturity of Graduate Students who receive the higher degrees, is not without interest:

TABLE VI. — AGE OF MASTERS OF ARTS, MASTERS OF SCIENCE, AND DOCTORS OF PHILOSOPHY: 1898.

	18	19	20	21	22	23	24	25	26	27	28 and over	Total.
A.M.'s . .	1	1	1	5	9	10	8	11	6	9	31	91
S.M.'s . .	. .	. .	. .	. .	. .	. .	. .	1	. .	1	3	5
Ph.D.'s . .	. .	. .	. .	. .	1	. .	1	4	2	2	15	25

FELLOWSHIPS AND SCHOLARSHIPS.

The appointments of fellowships and scholarships for 1897-98 were made toward the close of the preceding academic year, chiefly in June 1897. Similarly the appointments for the current year 1898-99 were for the most part made in the academic year the business of which is covered by the present Report. The recommendations to fellowships and scholarships are made by the Faculty of Arts and Sciences on the nomination of its Committee on Fellowships and Other Aids for Graduate Students, and thus form a part

of the business of that Faculty. But as the persons concerned are members of the Graduate School information on this subject has always been given in the reports of the Dean of the Graduate School.

Twenty-eight fellowships and fifty-two scholarships* were held by students in the Graduate School in 1897-98. With the fellowships are included the John Harvard Fellowships without stipend. In 1897-98 there were five appointments to these fellowships. Fifteen of the fellowships, including four of the John Harvard Fellowships, were held by Non-Resident Students who pursued their studies abroad. Thirteen of the fellowships, including one John Harvard Fellowship, and all the scholarships were held by Resident Students.

For 1898-99 appointments have been made to twenty-four fellowships and to fifty-one scholarships.†

The names of the holders of fellowships during the two academic years 1897-98 and 1898-99, with statements as to the present occupation of each, follow. The fellowships are arranged in the order of foundation.

1897-98.**1898-99.****Harris Fellowship.****JEREMIAH DENIS MATTHIAS FORD.**

A.B. 1894, A.M. 1895, PH.D. (Romance Philology) 1897. — Res. Gr. Stud., 1894-97. — Instructor in French, 1895-97. — Student of Romance Philology, in Paris. Instructor in French at this University.

MURRAY ANTHONY POTTER.

A.B. 1895, A.M. 1897. — Res. Gr. Stud., 1896-98. — Townsend Scholar, 1897-98. Student of Romance Languages and Comparative Literature at this University.

1897-98.**1898-99.****Rogers Fellowships.****ARTHUR STODDARD COOLEY.**

A.B. (*Amherst Coll.*) 1891, A.M. 1893, PH.D. (Classical Philology) 1896. — Res. Gr. Stud., 1892-97; Non-Res., 1897-98. — Thayer Scholar, 1893-94; Shattuck Scholar, 1894-95; Morgan Fellow, 1895-96. — Instructor in Greek, 1896-97. Student of Classical Philology and Archaeology, at Athens.

ARTHUR STODDARD COOLEY.

Reappointed.

* Or — exclusive of the five John Harvard fellowships, a Rogers fellowship without stipend, and three of the Supplementary Foundations (the Hemenway fellowship, the scholarship of the Harvard Club of Chicago, and the Virginia Barret Gibbs scholarship) — twenty-one fellowships and fifty scholarships.

† Including three John Harvard fellowships; the (new) Ricardo fellowship, the nomination to which is vested in the Department of Political Economy; the scholarships of the Harvard Clubs of Chicago and San Francisco; and the Virginia Barret Gibbs scholarship.

MACY MILLMORE SKINNER.

A.B. 1894, A.M. 1895, PH.D. (Semitics) 1897.
 — Res. Gr. Stud., 1894-97; Non-Res., 1897-98. — Townsend Scholar, 1894-95; University Scholar, 1895-96; Shattuck Scholar, 1896-97. — Assistant in Semitic Languages, 1894-97. — Student of Semitic Languages and History, in Strassburg.
 Student of Semitic Languages and History, in Berlin.

OLIVER MITCHELL WENTWORTH SPRAGUE.

A.B. 1894, A.M. 1895, PH.D. (Political Science) 1897. — Res. Gr. Stud., 1894-97. — University Scholar, 1894-95; Henry Lee Memorial Fellow, 1895-96; Thayer Scholar, 1896-97. — Student of Economic History, in London.
 Now Assistant in Economics, at this University.

MACY MILLMORE SKINNER.
Reappointed.

Parker Fellowships.

CHARLES LEONARD BOUTON.

S.M. (*Washington Univ., Mo.*) 1891, A.M. 1896.
 — Res. Gr. Stud., 1894-96; Non-Res., 1896-98. — University Scholar, 1894-95; Morgan Fellow, 1895-96; Parker Fellow, 1896-98. — Student of Mathematics, at Leipsic and Paris.
 Instructor in Mathematics, at this University.

REGINALD ALDWORTH DALY.

A.B. (*Victoria Univ., Ont.*) 1891, S.B. (*ibid.*) 1892, A.M. 1893, PH.D. (Natural History) 1896.
 — Res. Gr. Stud., 1892-95; Non-Res., 1896-98. — Parker Fellow, 1896-98. — Instructor in Geology, 1895-96.
 Instructor in Physiography, at this University.

HENRY AUGUSTUS TORREY.

A.B. (*University of Vermont*) 1893, A.M. 1896, PH.D. (Chemistry) 1897. — Res. Gr. Stud., 1893-94, 1895-97. — Derby Scholar, 1895-96; Thayer Scholar, 1896-97. — Student of Chemistry in Leipsic.
 Instructor in Chemistry, University of Vermont.

JOHN ALBRECHT WALZ.

A.B. (*Northwestern University, Ill.*) 1892, A.M. 1895, PH.D. (Germanic Philology) 1897. — Res. Gr. Stud., 1894-97. — Scholar of the Harvard Club of Chicago, 1894-95. — Instructor in German, 1895-97.
 Student of Germanic Philology and Literature, in Berlin.

FRANK WATTS BANCROFT.

(See Morgan Fellowships, 1897-98.)

SIDNEY BRADSHAW FAY.

A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1896-98. — Assistant in History, 1896-98.
 Student of History, in Paris.

JOHN ANDREAS WIDTSOE.

S.B. 1894. — Professor of Chemistry and Mineralogy, 1894-98, Utah Agricultural College; Chemist, 1894-98, to the U.S. Agricultural Experiment Station for Utah.
 Student of Chemistry, at Göttingen.

JOHN ALBRECHT WALZ.
Reappointed.

John Thornton Kirkland Fellowship.

GEORGE DAVIS CHASE.

A.B. 1889, A.M. 1895, PH.D. (Comparative Philology) 1897. — Res. Gr. Stud., 1894-97. — Shattuck Scholar, 1895-97. — Student of Comparative Philology in Leipsic.
 Latin Master, Lawrenceville School, New Jersey.

CHARLES SUMNER GRIFFIN.

A.B. (*Univ. of Kansas*) 1894, A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-98. — University Scholar, 1895-96. — Assistant in Political Economy, 1896-98.
 Student of Economics in Europe.

James Walker Fellowship.

WILLIAM BRIGGS SAVERY.

A.B. (*Brown University*) 1896, A.M. 1897. — Res. Gr. Stud., 1896-97. — Assistant in Philosophy, 1896-97. — Student of Philosophy, in Berlin.
 Now continuing his studies at this University, as Morgan Fellow.

ARTHUR ONCKEN LOVEJOY.

A.B. (*University of California*) 1895, A.M. 1897. — Res. Gr. Stud., 1895-98. — Scholar of the Harvard Club of San Francisco, 1895-96; University Scholar, 1897-98.
 Student of Philosophy at Paris.

1897-98.

1898-99.

Morgan Fellowships.

FRANK WATTS BANCROFT.

S.B. (*University of California*) 1894, S.M. (*ibid.*) 1896, A.M. 1897, PH.D. (Biology) — Res. Gr. Stud., 1896-98. — Virginia Barrett Gibbs Scholar, 1896-97. — Student of Zoölogy at this University.

Now continuing his studies in Berlin, as Parker Fellow.

CLARENCE POWERS BILL.

A.B. (*Adelbert College*) 1894, A.M. (*Western Reserve University*) 1895, A.M. 1896, PH.D. (Classical Philology) 1898. — Res. Gr. Stud., 1895-97. — University Scholar, 1895-96; Shattuck Scholar, 1896-97. — Student of Classical Philology at this University. Instructor in Latin at Western Reserve University.

WILLIAM ALLAN NEILSON.

A.M. (*University of Edinburgh*) 1891, A.M. 1893, PH.D. (English Philology) 1898. — Res. Gr. Stud., 1895-98. — University Scholar, 1896-97. — Student of English at this University.

Associate in English, Bryn Mawr College.

ARTHUR MAYER WOLFSON.

A.B. 1893, A.M. 1897, PH.D. (History) 1898. — Res. Gr. Stud., 1895-98. — Student of History at this University.

Instructor in History in the Boys' High School, New York.

AMADEUS WILLIAM GRABAU.

S.B. (*Massachusetts Institute of Technology*) 1896, S.M. 1898. — Res. Gr. Stud., 1897-98. — Thayer Scholar, 1897-98.

Student of Palaeontology at this University.

EARLE RAYMOND HEDRICK.

A.B. (*Univ. of Michigan*) 1896, A.M. 1898. — Res. Gr. Stud., 1897-98. — Shattuck Scholar, 1897-98.

Student of Mathematics at this University.

EDWARD CHARLES JEFFREY.

A.B. (*University of Toronto*) 1888. — Lecturer in Biology, University of Toronto, on leave of absence.

Student of Botany at this University.

WILLIAM BRIGGS SAVERY.

(See James Walker Fellowship, 1897-98.)

John Tyndall Scholarship.

HARRISON HITCHCOCK BROWN.

A.B. (*Amherst College*) 1889, A.M. 1895. — Res. Gr. Stud., 1894-97. — Townsend Scholar, 1896-97. — Student of Physics at this University.

Now continuing his studies at this University, as John Tyndall Scholar.

HARRISON HITCHCOCK BROWN.

Reappointed.

Robert Treat Paine Fellowship.

JOHN EDWARD GEORGE.

PH.B. (*Northwestern University*) 1895, A.M., 1897. — Res. Gr. Stud., 1896-97. — Scholar of the Harvard Club of Chicago, 1896-97. — Student of the Ethical Problems of Society, at this University.

Now continuing his studies in Germany.

JOHN EDWARD GEORGE.

Reappointed.

Henry Lee Memorial Fellowship.

HERBERT CAMP MARSHALL.

A.B. (*Ohio Wesleyan University*) 1891, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98. — Assistant in Economics, 1895-96. — Townsend Scholar, 1896-97. — Student of Political Economy at this University.

First-year Law Student.

WILLIAM LYON MACKENZIE KING.

A.B. (*University of Toronto*) 1895, LL.B. (*ibid.*) 1896, A.M. (*ibid.*) 1897, A.M. 1898. — Res. Gr. Stud., 1897-98. — Townsend Scholar, 1897-98.

Student of Political Economy at this University.

Ozias Goodwin Memorial Fellowship.

ARTHUR LYONS CROSS.

A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97. — Assistant in History, 1895-97. — Student of Constitutional Law in Berlin. Student of History at this University.

No appointment.

Henry Bromfield Rogers Memorial Fellowship.

MORTON ARNOLD ALDRICH.

A.B. 1895, PH.D. (*Univ. of Halle*) 1897. — Student at the Universities of Berlin, Munich, and Halle. 1895-97. — Student of Ethics in its relations to Sociology at this University.

Instructor in Political Economy at this University.

GEORGE HENRY BOKE.

PH.B. (*University of California*) 1894. — Principal, 1895-98, of the Oakland High School, California.

Student of Ethics in its relations to Jurisprudence at this University.

1897-98.

1898-99.

Hemenway Fellowship.

FRANK RUSSELL.

S.B. (*Iowa State Univ.*) 1892, S.M. (*ibid.*) 1895, A.B. 1896, A.M. 1897, PH.D. 1898. — Res. Gr. Stud., 1895-98. — Robert C. Winthrop Scholar, 1895-96; Hemenway Fellow, 1896-97. — Instructor in Anthropology, 1897-98. — Student of American Archaeology and Ethnology at this University. Instructor in Anthropology at this University.

No appointment.

John Harvard Fellowships.

ABRAM PIATT ANDREW, JR.

A.B. (*Princeton Univ., N. J.*) 1893, A.M. 1895. — Res. Gr. Stud., 1892-97. — Henry Bromfield Rogers Memorial Fellow, 1894-96; Assistant in Economics, 1896-97. — Student of Economics in London. Student of Economics in Europe.

GEORGE HENRY CHASE.

A.B. 1896, A.M. 1897. — Non-Res. Gr. Stud., 1896-98. — George Griswold Van Rensselaer Fellow, 1896-97; Fellow of the American School of Classical Studies at Athens, 1897-98. — Student of Classical Archaeology in Athens.

Now continuing his studies at this University, as Shattuck Scholar.

ALLERTON SEWARD CUSHMAN.

S.B. (*Worcester Polytechnic Institute*) 1888, A.M. 1897. — Res. Gr. Stud., 1896-98. — Instructor in Chemistry, 1892-96, Washington University, Mo. — Townsend Scholar, 1896-97. — Student of Chemistry at this University.

Commissary of Subsistence, with rank of Captain, U. S. Volunteers.

WALTON BROOKS MCDANIEL.

A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1893-96. — Assistant in Classics, 1896-97. — Student of Classical Philology in Europe.

Now continuing his studies in Cambridge.

JAMES KELSEY WHITEMORE.

A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97; Non-Res., 1897-98. — Instructor in Mathematics, 1896-97. — Student of Mathematics, in Paris.

Now continuing his studies in Göttingen, as John Harvard Fellow.

GEORGE RAPALL NOYES.

A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98. — Teacher of Classics, 1894-96, The Browne and Nichols School, Cambridge. — Savage Scholar, 1896-97; Thayer Scholar, 1897-98. Student of Slavic Languages in St. Petersburg.

JOSEPH TRUMBULL STICKNEY.

A.B. 1895. — Student of Classical Philology and Sanskrit in Paris, 1895-98.

Now continuing his studies, in Paris.

Whiting Fellowships.

JOHN EMERSON BURBANK.

A.B. (*Bowdoin College*) 1896, A.M. (*ibid.*) 1897. — Res. Gr. Stud., 1897-98. — Assistant in Physics, 1896-97, Bowdoin College. — Student of Physics at this University.

Now continuing his studies at this University, as Whiting Fellow.

JOHN EMERSON BURBANK.

Reappointed.

SILAS ELLSWORTH COLEMAN.

S.B. (*University of California*) 1896, A.B.
1897, A.M. 1898. — Res. Gr. Stud., 1896-98.
— Scholar of the Harvard Club of San
Francisco, 1896-97. — Student of Physics
at this University.

Teacher of Science, Los Angeles High
School, Cal.

HAROLD EDWARDS.

A.B. 1896. — Res. Gr. Stud., 1896-98. —
Thayer Scholar, 1896-97. — Student of
Physics at this University.

Now continuing his studies at this Uni-
versity, as Whiting Fellow.

GEORGE WASHINGTON PIERCE.

S.B. (*University of Texas*) 1893, A.M. (*ibid.*)
1894. — Res. Gr. Stud., 1898.

Student of Physics at this University.

HAROLD EDWARDS.

Reappointed.

Ricardo Fellowship (founded 1898).

FRANK HENDRICK.

A.B. 1897. — Student, Harvard Law School,
1897-98.

Second-year Law Student and Student of
Economics at this University.

The following Table gives the usual statistics relative to the appli-
cations and appointments for the three successive years, 1896-97,
1897-98, and 1898-99 : —

TABLE VII. — FELLOWSHIPS AND SCHOLARSHIPS (1896-98).

1. *Applications and Appointments.*

	1896-97.	1897-98.	1898-99.
Spring applicants for reappointment or pro- motion	48	50	47
Spring applicants for a first appointment . .	250	225	222
Later applicants	33 331	29 304	38 307
	—	—	—
Appointed to fellowships	19	21	21
Appointed to scholarships	48	50	47
Appointed instructors or assistants	17 84	20 91	14 82
	—	—	—
Deduct for repetitions	1	2	2
	83	89	80
Entered or continued in the Graduate School without receiving any of the above-named appointments	51	55	76
Entered undergraduate classes of Harvard College	6	8	4
Entered other departments of the University	8 65	10 73	5 85
	— —	— —	— —
Applicants who were at the University in the year following their applications . .	148	162	165
Applicants not at the University in that year	183	142	142
	331	304	307

2. *Classification of Applicants and Appointees.*

	1896-97.		1897-98.		1898-99.	
	Applicants.	Appointees.	Applicants.	Appointees.	Applicants.	Appointees.
Students of Philology	122	24	101	23	107	24
Students of Philosophy, History, or Political Science	109	20	103	19	106	19
Students of Mathematics, Physics, or Chemistry	59	14	60	19	55	17
Students of Natural History	39	9	38	10	35	7
Students of other branches, or unclassified	2	0	2	0	4	1
	331	67	304	71	307	68
Students in the Graduate School	119	46	104	43	115	43
Students in Harvard College	39	8	29	6	25	6
Students in other Departments of the University	3	0	6	1	6	1
Former students in some Department of the University	21	5	27	2	28	5
Persons never previously members of the University	149	8	138	19	133	13
	331	67	304	71	307	68
Harvard Bachelors of Arts or Science, not previously graduated elsewhere	38	19	38	15	35	16
Harvard Bachelors of Arts or Science, previously graduated elsewhere	29	10	23	5	21	5
Graduates of other institutions, not Harvard Bachelors of Arts or Science	201	36	187	47	207	42
Undergraduates of Harvard College, not already graduated elsewhere	21	2	21	4	19	5
Undergraduates of other institutions and other non-graduates	42	0	35	0	25	0
	331	67	304	71	307	68

Twelve of the twenty-eight holders of fellowships in 1897-98 are now engaged in teaching, — all of them, with one exception, being already Doctors of Philosophy, — nine in colleges or universities (including six at this University), and three in schools. Of the remainder, eight are continuing their studies at this University, and seven abroad, while one is in the United States army. Twelve of the fellowship holders in 1897-98 have similar appointments for the current year, 1898-99.

INSTRUCTORSHIPS AND ASSISTANTSHIPS.

Fellowships and scholarships are not the only aids that Graduate Students receive. Many members of the Graduate School serve the University as paid instructors and assistants, by regular appointment of the Corporation. In 1897-98, ten members of the School held instructorships, and thirty-three held assistantships. In the current year, the numbers are, respectively: five instructors, and thirty-seven assistants. Table VI shows that many of the annual appointments to these positions are made from among applicants for fellowships and scholarships in the Graduate School.

Of the two hundred and ninety-three members of the School in 1897-98, one hundred and eighteen—or about forty per cent.—were holders either of instructorships, assistantships, fellowships with stipends, or scholarships. In this count no note is taken of proctorships and other similar appointments by which the income of students in the School is increased.

THE CATALOGUE OF THE GRADUATE SCHOOL (1873-98).

In my last Report, in analyzing the membership of the School, I pointed out that there were in general four classes of men who, each for a special purpose, secured enrolment in the School:—first, young men mostly recent Bachelors of Arts who are continuing the liberal studies of their undergraduate days in a more specialized form, without distinct reference to the professional career; secondly, men of a similar or a higher grade of academic advancement who intend to become teachers in colleges and higher secondary schools and who fit themselves for their life-work by specializing and by doing original research in some branch of learning or science; thirdly, men of similar academic standing who intend to become specialists in literature, history, philosophy, or science, without also expecting to become teachers; and fourthly, men at present actually engaged in professional pursuits who seek by study in the Graduate School to qualify themselves the better for their special professional tasks. In 1896-97 two-thirds of the membership of the School might be placed in the second group (of intending teachers), while the remainder were found to be nearly equally divided among the other groups. A similar classification will hold true of the members of the School in 1897-98.

These comments on the aim and purposes of the present members

of the School naturally suggest an inquiry as to the actual occupations and pursuits of the men who holding the higher degrees have gone forth from the School. This inquiry we are now in a position to answer more accurately and completely than at any time in the past.

A *Catalogue of the Graduate School (1873-98)*, the first of its kind, has been prepared under my supervision and has been recently published. The present year is an appropriate one in which to issue such a Catalogue, for the Graduate School or Department has now been in existence a quarter of a century, exactly twenty-five years having elapsed since the first Doctor of Philosophy was created. The Catalogue contains not only the names of all holders of the degrees of Ph.D., S.D., S.M., and A.M.* (on examination), but also the post-office addresses of these persons (in the case of those who are dead the date of their death), and statements about their occupations, the degrees they have received and the positions they have held. There are one thousand and eleven different persons in this list. In an appendix the Doctors of Philosophy and of Science are grouped according to the departments of learning or science in which each has received his degree.

It will be of interest to give the statistics of the degrees conferred, and to follow these by some remarks on the present occupations of the holders of the degrees.

The following Table indicates the number of degrees conferred each year.

* There are, or have been, six classes of Master of Arts of Harvard University:—holders of the degrees (1) *honoris causa*; (2) *ad eundem*; (3) in course, *i. e.* Bachelors of three or more years' standing, on the payment of a fee; (4) with a professional degree, without additional study or residence; (5) with the degree of Doctor of Philosophy, and (6) *pro meritis*, or on examination, conferred after residence and examination upon candidates approved by the Faculty of Arts and Sciences or—before 1890—the Academic Council. The A.M. *ad eundem* ceased to be conferred early in the present century; the A.M. in course has not been given since 1872; the A.M. with a professional degree but without additional study, was conferred only in 1883-95, both years inclusive, and the Ph.D. carried with it the degree of A.M. only from 1877 to 1892. At the present time the degrees of Masters of Arts of Harvard University are A.M. *honoris causa* and A.M. *pro meritis*. The Catalogue, so far as this degree is concerned, contains the names of the latter kind of Masters of Arts.

TABLE VIII. — RECIPIENTS OF HIGHER NON-PROFESSIONAL DEGREES FROM HARVARD UNIVERSITY (ON EXAMINATION): 1873-1898.

	DOCTORS OF PHILOSOPHY.			DOCTORS OF SCIENCE.			MASTERS OF ARTS.			MASTERS OF SCIENCE.*		
	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.
1870 . . .	..	..	..	..	..	..	1†	..	1			
1873 . . .	2	1	1	1	..	1	..	..	..
1874 . . .	..	..	..	..	..	..	8	1	7			
1875 . . .	3	..	3	1	..	1	13	2	11			
1876 . . .	5	2	3	..	..	..	7	2	5			
1877 . . .	4	1	3	..	..	..	9	1	8			
1878 . . .	4	..	4	3	..	3	13	2	11			
1879 . . .	2	..	2	1	..	1	9	..	9			
1880 . . .	5	1	4	..	..	..	14	..	14			
1881 . . .	2	1	1	1	..	1	7	..	7			
1882 . . .	..	..	..	1	..	1	7	..	7			
1883 . . .	5	1	4	..	..	..	12	2	10			
1884 . . .	5	1	4	1	..	1	15	3	12			
1885 . . .	4	..	4	..	..	..	12	1	11			
1886 . . .	4	..	4	2	..	2	17	2	15			
1887 . . .	1	..	1	1	..	1	18	1	17			
1888 . . .	7	..	7	..	..	..	32	..	32			
1889 . . .	4	..	4	2	..	2	23	..	23			
1890 . . .	8	..	8	..	..	..	31	3	28			
1891 . . .	7	..	7	1	..	1	45	2	43			
1892 . . .	5	..	5	1	1	..	78	2	76			
1893 . . .	12	..	12	1	..	1	70	1	69			
1894 . . .	16	1	15	2	..	2	93	2	91			
1895 . . .	16	..	16	2	..	2	84	4	80			
1896 . . .	18	..	18	..	..	..	98	1	97			
1897 . . .	25	2	23	1	..	1	112	1	111	..	..	..
1898 . . .	26	..	26	..	..	..	102	..	102	5	..	5
Totals .	190	11	179	22	1	21	930	33	897	5	..	5
Total (deducting 136 for names inserted twice), 1011.												

* Degree established 1897.

† This degree was voted in 1894.

The following Table indicates the departments of learning and science in which the degrees of Doctor of Philosophy and Doctor of Science have been conferred:—

TABLE IX. — DOCTORS OF PHILOSOPHY AND SCIENCE: CLASSIFIED ACCORDING TO THE SUBJECTS IN WHICH THE DEGREES HAVE BEEN CONFERRED: 1873-98.

	PH.D.'s.	S.D.'s.	TOTAL.
Philology	69		
Classical	32		
Germanic, etc.	7		
English	17		
Romance	5		
Comparative	1		
Sanskrit	1		
Semitic	6		
Philosophy	18	. .	18
History	22	. .	22
Political Science	10	. .	10
Mathematics	8	2	10
Physics	9	3	12
Chemistry	14	5	19
Natural History	38	12	50
American Archaeology and Ethnology	2	. .	2
Total	190	22	212

The Doctors of Philosophy and Doctors of Science for the most part are or have been teachers (171 out of 212) and chiefly in colleges. Of this number 25 are or have been teachers of Classics, 25 of Modern Languages, 23 of History and Political Science, 14 of Philosophy. Sixty-two are or were teaching Natural or Physical Science, — 27 Biology, 23 Physics and Chemistry, including 18 teachers of Chemistry; eight are teaching Mathematics. Sixteen are classified as Scientists, a category that includes men of science who are not also teachers. Six of the Doctors of Philosophy are clergymen, but five of the six are or have been also professors in colleges or theological seminaries. Six are lawyers or are in public life. Only seven of the living Doctors are not actually engaged in some profession or other similar occupation. These seven are continuing their studies, as a rule in Europe.

A classification of the 704 A.M.'s who are not also Ph.D.'s is not wholly satisfactory, since many of these men have not yet completed their studies and are not established in life. It is worth noting, however, that 72 of them are lawyers, 13 physicians, 61 clergymen; 28 are in "business," 12 are journalists or "authors," 7 are libra-

rians, and 19 are "scientists." Three hundred and sixteen are teachers — 38 in Classics, 57 in Modern Languages (including 33 in English), 26 in History and Political Science, 10 in Philosophy, 25 in Mathematics (including Astronomy), and 43 in Natural and Physical Science.

The Catalogue shows, not counting private tutors, assistants in college work and a few doubtful cases, 331 teachers in colleges (211 professors and 120 instructors), and 103 teachers in secondary schools. The Catalogue takes no note of the large number of members of the School who received no degree for their studies, but are among the most important elements in the membership of the School.

These figures clearly show that while the Graduate School has been to those who resort to it primarily a place in which to secure preparation for the work of teaching in colleges and universities and in the higher secondary institutions, it has also to a very large extent been used by men who subsequently have entered other professions and other walks of life.

DEGREES IN THE GRADUATE SCHOOL.

The degrees administered through the Graduate School are those of Bachelor of Arts, Master of Arts, Master of Science, Doctor of Philosophy and Doctor of Science.

A.B. — Applications made for this degree by Graduate Students are by the Board referred to the Committee on Admission from Other Colleges and to the Administrative Board of Harvard College.

A.M. — The Administrative Board receives and reviews all applications for the degree of Master of Arts, and candidates approved by the Board are favorably recommended to the Faculty.

S.M. — Applications for this degree are normally referred to the several Divisions for their recommendations and are then transmitted to the Faculty through the Administrative Board.

Ph.D. and S.D. — In the case of candidates for these degrees the Board ascertains merely whether the technical conditions of residence have been satisfactorily fulfilled, the responsibility concerning further conditions being by statute devolved upon the various Division committees on Honors and Higher Degrees.

In my last Report were pointed out certain anomalies in the present administration of the degrees of Bachelor of Arts and Master of Arts that need correction, and certain remedies were there recommended. Supported by the votes of the Administrative Board I beg leave to call attention anew to the recommendations and to the arguments on

which they were based, as set forth on pp. 149-151 of the Report. The votes of the Board on these matters are as follows:—

On December 12, 1897, on motion of Professor Norton, it was

Voted, That in the opinion of this Board all candidates for the degree of Master of Arts should be required to register in a graduate department of the University, either the Graduate School or one of the professional schools, and all studies pursued by students as undergraduates should be credited to the degree which is awarded on the completion of the undergraduate period of study, — the degree of Bachelor of Arts.

On May 2, 1898, on motion of Professor Farlow, it was

Voted, That in the opinion of this Board, after the present year, the degree of Bachelor of Arts should not be given to students registered in the Graduate School for work done while so registered.

The second of these votes has been presented to the Faculty, but has as yet failed to receive its approval. The first vote has not yet been considered by the Faculty.

The opening of the current year (1898-99) was marked as in 1897 by a meeting of the members of the School, the officers of instruction and invited guests, in the Faculty Room, on Thursday evening, October 6. Members of the Corporation, of the Board of Overseers, and of the Overseers' Visiting Committees were invited to be present. About three hundred gentlemen assembled and listened to the principal address by Professor Farlow, and to shorter addresses by Professor Dicey of Oxford, President Eliot, and Mr. G. W. Benedict.

JOHN HENRY WRIGHT, *Dean*.

NOVEMBER 26, 1898.

THE DIVINITY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — As Dean of the Divinity School, I have the honor to present the following report for the academic year 1897-98:—

Forty students were connected with the School. These were distributed as follows:—

Resident Graduates	17	Junior Class	11
Senior Class	4	Special Students	6
Middle Class	2		

One member of the Senior Class was a graduate of Princeton Theological Seminary, so that the number of graduate students was eighteen.

Twelve Theological Seminaries were represented as follows:—

Andover	2	Manchester College, Oxford .	1
Bethel Baptist, Sweden . . .	1	Meadville	3
Boston University	3	Presbyterian College, Montreal	1
Cambridge Episcopal	2	Princeton	1
Hamilton	1	Wittenberg	1
Harvard	2	Yale	1

Twenty-six colleges were represented, namely:—

Antioch	1	University of Missouri	1
Brown University	1	Mount Allison	1
University of California . . .	1	Mount Union	1
University of Chicago	1	University of North Carolina .	1
Colorado	1	Oberlin	2
Dickinson	1	Ohio Wesleyan University . .	1
Elon	1	Princeton University	1
Harvard University	9	Randolph Macon	1
Hobart	1	Trinity	1
Lebanon University	1	Tufts	2
London University	1	Yale University	2
McGill University	1	Williams	2
University of Michigan	1	Wittenberg	1

The last year was an interesting one from the fact that in it the new regulation as to fees for instruction went into effect. It was pleasant to find that instead of a falling off in numbers there was a slight increase, two more being present than in the preceding year.

It was still more gratifying to find that the proportion of students receiving pecuniary assistance, and the average amount received by each student thus helped, were both less than usual. Too much encouragement must not, however, be drawn from these facts, as this year the number of students has fallen to twenty-seven and the proportion of students helped has increased. Whatever may be the cause of the falling off in numbers during the current year the facts stated in regard to the last year show that the higher fee does not necessarily imply diminished attendance.

Thirty-one students left the School either during, or at the end of, the year. This is a large proportion of the whole number present, but not much, if at all, larger than the average. In 1897, twenty-six; in 1896, twenty-eight; and in 1895, thirty-six thus left. Nine of those who left the School last year received degrees; three that of B.D., one that of Ph.D., and five that of A.M. Sixteen left in the natural course of things. As regular students they had been three or four years in the School, or as Resident Graduates they had completed the year for which they came, or had added a year to that. Of those who left before their regular time, four did so on account of ill health, three to take the charge of parishes, and one for the purpose of going as a missionary to China. One other, a member of the Senior Class, had accepted the charge of a parish but remained in the School doing half-work. Of the three who took the degree of B.D. only one had been a member of the class from the beginning. Of the remaining two, one had been in the School four years, the other had, the year before, graduated at Princeton. Of the eight with which the class began only three finished their three years in the School, and only one received its degree.

I am happy to state that the general catalogue of the School is at last published. It may be remembered that it was begun in 1889 by a Committee of the Association of the Alumni. It has been completed by Mr. Morison the Secretary and Librarian of the School. No one who has not watched the course of this or some similar undertaking can realize the amount of labor and ingenuity that is required for its completion. Accuracy is of course fundamental. To this must be added skill in finding and following out clues; and for the best success, the inspiration of a pleasant excitement in the search, such as the hunter feels in the pursuit of his game. All these qualifications Mr. Morison brought to the work and the result is one with which both he and the School may well be satisfied.

From this catalogue it appears that 1,047 students have been con-

nected with the School since its beginning. Of these, 550 graduated from the School, and 497 did not. Of the graduates 243 are still living, and of the non-graduates 368. The number of living non-graduates is thus one third larger than that of living graduates. According to present indications this proportion will rapidly increase. The statistics that I have just given show in part the reasons of this. These reasons are the large proportion of Graduate Students, the opportunity that students have to take other degrees, and the impatience of students to enter upon the work of their lives. It is to be regretted that the churches encourage this impatience. They appear to prefer a minister who has seen the inside of a Divinity School; but the amount of time that he has passed in one seems a matter of indifference. It is to be hoped that the churches instead of looking out, each for its own immediate advantage, may at some time see the gain that would result from encouraging men to take a full course of preparation. In the case of the class of 1898 both Orthodox and Unitarian churches plucked our fruit before it was ripe. Students yield more readily to the eagerness to be at work, from the fact that to some of them certain studies that have formerly been considered essential in the preparation for the ministry seem to be of small value. It has been sometimes urged that the School should admit for the degree more studies of a general nature such as these men would recognize as of practical importance. This has been done to some extent. So far, however, as a Divinity School makes its teaching resemble that of a College, so far does it lose its reason for existence; and so far would any special reason for attending it cease to exist. A theological seminary is established for the sake of certain studies that may be pursued there as nowhere else. If the men who wish to devote only a short time to these special studies desire to pursue longer those of a more general nature, they could stay at a college where these would naturally be followed, or, under the present equality of fees in this University, they could take them while retaining their membership in the School. The facts thus stated may be regarded as springing from the tendency to secularization which is manifesting itself to some extent in the ministerial profession. Strictly professional studies and degrees are, in the minds of some, losing a little of their importance. This secularization has obviously its good side; but the further consideration of it would be out of place in this report. The lack of a body of men remaining three years in the School and then receiving its degree, is certainly a matter of great regret. To offset this loss we have the larger University work which the School is doing.

I have referred in former reports to the Williams Fellowships. These are offered to graduates of Theological Seminaries who are proposing to enter the University. The number of these offered each year has varied from two to three, and the amount of a fellowship has varied in different years, the highest sum having been \$500, and the lowest \$350. The present amount is \$400. These fellowships have been useful in calling attention to the School, and in aiding men of promise to attain a more thorough training than would otherwise have been possible. Statistics that I have obtained from the Secretary of the School show that the money thus used has been profitably spent. There were in the ten years ending with 1896-97 eighteen Williams Fellows. Of these, two became professors, one in the Semitic department of a Theological Seminary, and one in that of Philosophy in a State University. The remaining sixteen became settled ministers. These ministers belong to seven different denominations as follows: Orthodox Congregational six, Presbyterians five, Disciples, Dutch Reform, Episcopal, Methodist, and Unitarian, one each. Of the eighteen, one, the lamented Professor Freeman of Meadville, has died. Of the seventeen now living, one is a University Professor and fifteen are pastors of churches. They reside in twelve different states, as follows: Massachusetts three, Illinois two, New York two, Ohio two, Colorado, Indiana, Iowa, Louisiana, Minnesota, New Hampshire, North Carolina, and South Carolina one each.

Two important steps were taken last year in the management of the School. One was the abolition of the restrictions in regard to preaching by students. Preaching now stands upon the same footing as any other business in which a student may wish to engage. He must perform all required work in the courses which he undertakes, and if he receives help, must give his main time and strength to the work of the School. The other step was the allowing the study of elocution to count as half a course. It is hoped that this will cause on the part of students a more systematic attention to this department of instruction, the importance of which I urged in my last report.

During the summer Mr. Ropes was promoted to be Assistant Professor. The promotion was richly deserved.

The opening address of the year was given by Professor Toy. His subject was "Methods of Studying Old Testament Ethics."

I present in tabular form a list of the courses offered and a classified statement of the attendance on the different courses.

COURSES OF INSTRUCTION, 1897-98.

OLD TESTAMENT.

- Professor LYON. — Hebrew. — Mitchell's Hebrew Lessons. Explanation of parts of Genesis and of the Psalm-book. Three hours. 3 Div., 2 Col.
- Professor TOY. — Hebrew (second course). — Interpretation of parts of the Prophets and Poetical Works. Text-criticism. Two hours. 2 Div.
- Professor LYON. — Jewish Aramaic. Kautzsch's Biblisch-Aramäische Grammatik. — Interpretation of parts of Ezra, Daniel, and the Targums. Two hours.
- Professor LYON. — History of Israel, political and social, till the death of Herod the Great. Text-books, lectures, and theses. Two to three hours. 2 Div., 58 Col., 1 Sci.
- Professor TOY. — History of pre-Christian Hebrew Literature. Two hours. 2 Div., 1 Col., 1 Sp.
- Professor TOY. — History of the Hebrew Religion, with comparison of other Semitic religions. Two hours. 4 Div.
- Professor LYON. — Assyrian. Lyon's Assyrian Manual. Delitzsch's Assyrian Grammar. Abel and Winckler's Keilschrifttexte. Two hours.
- Professor LYON. — Assyrian (second course). — Delitzsch's Assyrian Grammar. The Chaldean Epic. Letters and Commercial Documents. Two hours. 1 Div., 1 Gr.
- Research courses. The instructors arrange and supervise for any properly prepared student a line of special study on such topic as may be agreed on. 1 Gr.

The Semitic Conference holds meetings twice a month throughout the academic year. The subject for 1897-98 was the names of Semitic deities. There were essays and discussions. In addition to the regular work letters from foreign correspondents were read from time to time, and notes were presented calling attention to new publications, to travels, explorations, and discoveries, and to additions to the Semitic Museum and the Semitic Library.

3 Div., 5 Gr., 10 Col.

NEW TESTAMENT.

- Professor THAYER. — New Testament Times. — The political, social, moral, and religious condition of the world when Christ appeared. Two and a half hours. 5 Div.
- Professor THAYER. — New Testament Introduction. — The origin, contents, and history of the New Testament writings, together with the formation of the Canon. Two and a half hours. 6 Div.
- Mr. ROPES. — Preparatory Course. — General topics (including the characteristics of New Testament Greek and the elements of textual criticism); exegetical work begun. Two and a half hours. 4 Div.

- Mr. ROPES. — The Teaching of Jesus as contained in the Parables. Two hours.
- Mr. ROPES. — The Synoptic Gospels, with special reference to the Synoptic Problem. Two and a half hours. 3 Div.
- Professor THAYER. — The Gospel and Epistles of John. Two hours.
- Mr. ROPES. — The Apostolic Age. — Study of the Acts of the Apostles. Two hours. 3 Div., 1 Col.
- Professor THAYER. — Outline lectures of the life of Paul. — Study of the Four Great Epistles. Two hours. 6 Div.
- Mr. ROPES. — The Minor Pauline Epistles. Two hours.
- Mr. ROPES. — The Pastoral Epistles. One hour.
- Professor THAYER. — The Epistle to the Hebrews. Two hours.
- Mr. ROPES. — The Catholic Epistles. One hour.
- Mr. ROPES. — The Apocalyptic literature, with special study of the Revelation of John. Two hours. 1 Div.
- Professor THAYER. — Biblical Interpretation. — Its history, methods, principles, and their application in the study of difficult and debated New Testament passages. Two hours.
- Professor THAYER. — Biblical Theology of the New Testament, centring upon the doctrines of sin and redemption. Two hours.
- Professor THAYER. — History of the English Bible, with detailed study of the Revised New Testament. One hour.
- Professor THAYER. — Modern Lives of Christ. One hour half the year.
- Professor THAYER. — Biblical Geography and Archaeology. One hour.
- Professor THAYER. — Selections from the Septuagint, with special reference to the use made of the Old Testament in the New. One hour.
- Professor THAYER. — Selections from Greek and Latin writers of special interest to students of the New Testament. One hour. For example:—
- a. Plutarch on the Delay of the Deity in the punishment of the wicked.
 - b. Philo's *Legatio ad Gaium* and *In Flaccum*.
 - c. Josephus against Apion.
 - d. Selections from the Apocrypha of the Old Testament and of the New.
 - e. Selections relating to the early history of the Canon.
 - f. The Octavius of Minucius Felix, the Apologeticus of Tertullian, the correspondence of Pliny and Trajan.
- Professor LYON. — Classical Aramaic (Syriac). Roediger's *Chrestomathia Syriaca*, ed 3. The Peshitto version of the New Testament.
- Professor THAYER. — Advanced study and research on such topics as the antecedents and aims of individual students may render advisable. 1 Div.

The New Testament Conference meets on the second and fourth Monday evenings of every month to hear and discuss papers upon topics relating to the New Testament.

CHURCH HISTORY.

- Professor PLATNER. — History of the Early Church, with special reference to the patristic literature. Two hours. 5 Div., 2 Col.
- Professor EMERTON. — The Mediaeval Church. — Formations of national churches in the Germanic states; establishment of the mediaeval papacy and its development to be the controlling force in European affairs; the Holy Roman Empire. Two hours. 3 Gr., 8 Col.
- Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1350–1563. Two hours. 1 Div., 6 Gr., 12 Col.
- Professor PLATNER. — History of the Church since the Reformation. Two hours. 3 Div., 2 Gr., 2 Col.
- Professor EMERTON. — [History of Christian Doctrines.] Two hours.
- Professor EMERTON. — Selected topics from the Canon Law, with reference also to the principles of Protestant Church Law. One hour.
- Professor PLATNER. — Documents relating to Ancient Church History (A). One hour.
- Professor PLATNER. — Documents relating to Ancient Church History (B). One hour.
- Professor EMERTON. — Advanced study and research in connection with the Seminary in Mediaeval History. Special topic: The "Erasmian Reform." Two hours.

SOCIAL QUESTIONS.

- Professor PEABODY. — The Ethics of the Social Questions. — The modern social questions: Charity, the Family, Temperance, and various phases of the Labor question in the light of ethical theory. — Lectures, special researches, and required reading. Three hours. 5 Div., 5 Gr., 95 Col., 1 Law.
- Professor PEABODY. — Sociological Seminary. — Subject for the year: The Christian Doctrine of the social order. Two hours. 5 Div., 4 Gr.
- Professor PEABODY. — Special work. 1 Div.

COMPARATIVE STUDY OF RELIGIONS.

- Professor EVERETT. — Comparative Study of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. Two hours. 9 Div., 3 Gr., 12 Col.

THEOLOGY.

- Professor EVERETT. — The Psychological Elements of Religious Faith. One hour. 10 Div., 5 Gr., 12 Col., 1 Sc.
- Professor EVERETT. — Systematic Theology. Theism and the special content of Christian faith. An elaborate essay on some theological subject is expected from each student taking this course. Three hours. 9 Div., 1 Gr., 2 Col.
- Professor EVERETT. — Advanced Study. 1 Div.

HOMILETICS AND PASTORAL CARE.

- Mr. HALE. — The structure and analysis of sermons. 4 Div.
- Professor PEABODY. — Each student writes five or six sermons during the year, three of which are preached before the two upper classes and criticised by students and instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching named below. This course may be taken twice. 10 Div.
- Professor PEABODY. — The Minister as Pastor, and the history of Christian worship. One hour. 4 Div.
- Professor PEABODY. — [The Minister as Preacher, and the history of Christian preaching. One hour.]
- Mr. HALE. — The Minister as Organizer and Director of Church Activities. One hour. 4 Div.

ELOCUTION.

- Dr. CURRY met the students, individually or in groups, for instruction in Vocal Training and Expression. Three hours. 14 Div.

GENERAL EXERCISES.

- Evening Prayers, conducted by professors and students.
- Worship and Preaching conducted by students in the Chapel of the School. Open to the public. Once a week.
- Meetings for Religious Conference, conducted by students. Once in two weeks.

During the year beginning October 1, 1897, there were added to the Divinity Library by purchase, 361 volumes and 33 pamphlets; by gift, 182 volumes and 555 pamphlets; by transfer from the College Library, 671 volumes and 26 pamphlets. October 1, 1898, there were in the Library 28,710 volumes and 6,254 pamphlets. The books transferred from the College Library were in the department of the New Testament, so that now the books in this department belonging to the University are chiefly in the Divinity Library, though many duplicates and also some other volumes remain in the College Library. This is important as being the first attempt to draw a line of demarcation between the kind of books that should be placed in the Divinity Library and those that should be placed in the College Library.

During the year 2,408 titles were catalogued in the author catalogue, and 80 in the subject catalogue. As in the previous year, the time of the Librarian was largely given to the general catalogue of the School. The completion of this work will make possible more rapid progress in the cataloguing of the Library. During the year there were borrowed from the stack for home use 1,637 volumes; from the stack for hall use 453 volumes; and from the reserved books for one night use 784 volumes.

C. C. EVERETT, *Dean*.

THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor of presenting my report upon the Law School for the academic year 1897-98.

The table on pages 162, 163 gives the courses of study and instruction during the year, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

During the thirteen months from September 1, 1897, to October, 1898, 3,468 bound volumes and 770 pamphlets have been added to the library. The library contained, October 1, 1898, about 44,300 volumes and 5,200 pamphlets.

The table on the next page exhibits the growth of the School, during the last twenty-nine years, in the number of students, the number and percentage of college graduates, and in the number of colleges represented by their graduates. The figures for the current year will be increased by later entries.

The number of non-graduates in this table is somewhat misleading, since it includes 30 Harvard College seniors on leave of absence and registered in the Law School. Of these, 6 have completed all their college work but a course and a half, 8 all but a single course, 4 all but a half course, while 12 have fulfilled all the requirements for the degree of A.B. Transferring these seniors to the column of graduates, we have 529 graduates in the School, and the percentage of graduates rises from 89 to 94. A similar transfer of 12 seniors in the preceding class would give, for the year 1897-98, 502 graduates and a percentage of 91.

The registration of 30 seniors in the Law School indicates how rapidly the conviction is spreading that a young man should be able in some mode to complete the College course and the Law School course in six years. The reasonableness of this conviction, so long as the average age of admission to the College stands at 19, is obvious. But neither of the two methods of accomplishing the desired result that have been tried thus far, has stood the test of experience.

For some years prior to 1893 it was the common practice of college students who wished, as the phrase went, to save a year, to attend during their Senior and Junior years, the first-year courses of the Law School and to take, in the September following their graduation,

Year.	Whole No. of Students.	Total of College Graduates.	Harvard Gradu- ates.	Graduates of other Colleges.	Non- Gradu- ates.	Per cent. of College Graduates.	No. of Col- leges rep- resented.
1870-71	165	77	27	50	88	47	27
1871-72	138	70	34	36	68	51	25
1872-73	117	66	34	32	51	56	25
1873-74	141	86	49	37	55	61	25
1874-75	144	82	63	19	62	57	18
1875-76	173	93	60	33	80	54	25
1876-77	199	116	74	42	83	58	30
1877-78	196	121	80	41	75	62	30
1878-79	169	109	71	38	60	64	24
1879-80	177	118	90	28	59	66	20
1880-81	161	112	82	30	49	70	19
1881-82	161	99	66	33	62	61	22
1882-83	138	93	58	35	45	67	32
1883-84	150	105	75	30	45	70	25
1884-85	156	122	85	37	34	78	31
1885-86	158	122	83	39	36	77	29
1886-87	188	143	88	55	45	76	34
1887-88	225	158	102	56	67	70	32
1888-89	225	158	105	53	67	70	32
1889-90	262	189	122	67	73	72	41
1890-91	285	200	135	65	85	70	33
1891-92	370	257	140	117	113	69	48
1892-93	405	266	132	134	139	66	54
1893-94	367	279	129	150	88	76	56
1894-95	413	310	139	171	103	75	74
1895-96	475	380	171	209	95	80	82
1896-97	490	408	186	222	82	83	82
1897-98	551	490	229	261	61	89	77
1898-99	561	499	210	289	62	89	76

the examinations for advanced standing in the Law School. The Law School record of college students, who in this manner anticipated the first year of their law work, was so poor as to convince the Law Faculty that it was for the interest of the student and of the School to remove the opportunity for this anticipation. Accordingly in 1893 the privilege of taking advanced standing in the School was abolished except for persons who had been in regular attendance for an academic year at some other law school.

In consequence of this change a new mode of saving a year was introduced. The Faculty of Arts and Sciences, yielding to the pressure of their students, began the practice of granting leave of absence during the senior year to those who had crowded at least five-eighths of the work of that year into the preceding three years.

Instructors.	Studies and Text-books.	Exercises per week.	Number of students examined.
First Year.			
Prof. Ames	Contracts. Cases on Contracts: Langdell, vol. 1, 2d ed., Williston, vol. 1 . .	3	212
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	206
Prof. Smith	Torts. Cases on Torts: Ames, vol. 1, 2d ed., Smith, vol. 2	2	216
Prof. Beale	Civil Procedure at Common Law. Ames's Cases on Pleading	1	201
Prof. Beale	Criminal Law and Procedure. Beale's Cases on Criminal Law	2	208
Second Year.			
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	126
Prof. Williams } Prof. Ames }	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	83
Prof. Wambaugh	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	14
Prof. Thayer	Evidence. Thayer's Cases on Evidence	2	162
Prof. Wambaugh	Insurance. No text-book	2	17
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . .	2	25
Prof. Williams } Mr. Dodge }	Property. Gray's Cases on Property, vol. 3, 4	2	160
Prof. Thayer	Sales of Personal Property. Williston's Cases on Sales	2	63
Prof. Ames	Trusts. Ames's Cases on Trusts (new edition)	2	160
Prof. Beale	Carriers. McClain's Cases on Carriers	1	39
Prof. Smith	Law of Persons. No text-book	1	37
Mr. Barnes	Suretyship. Ames's Cases on Suretyship	1	5

Third Year.

Prof. Beale	Conflict of Laws and International Law. No text-book	2	20
Prof. Thayer	Constitutional Law. Thayer's Cases on Constitutional Law	2	93
Prof. Smith	Corporations. Smith's Cases on Corporations	2	140
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	56
Prof. Ames	Partnership. Ames's Cases on Partnership	2	116
Prof. Gray	Property. Gray's Cases on Property, vol. 5, 6	2	36
Mr. Barnes	Suretyship. Ames's Cases on Suretyship	1	8
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	32
Prof. Williams }	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	31
Prof. Ames }	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	16
Prof. Wambaugh	Evidence. Thayer's Cases on Evidence	2	8
Prof. Thayer	Insurance. No text-book	2	46
Prof. Wambaugh	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . .	2	9
Prof. Langdell	Property II. Gray's Cases on Property, vol. 3, 4	2	3
Prof. Williams }	Sales of Personal Property. Williston's Cases on Sales	2	34
Mr. Dodge }	Trusts. Ames's Cases on Trusts (new edition)	2	2
Prof. Thayer	Carriers. McClain's Cases on Carriers	1	15
Prof. Ames	Comparative Jurisprudence. No text-book	1	
Prof. Beale	Law of Persons. No text-book	1	10
Prof. Gray	Roman Law — selected topics. No text-book	2	

The effect of this new method may be seen in the following tables, the first exhibiting the record of the anticipating seniors on the work of their three years in college, and the second giving the record of their first-year work in the Law School.

YEAR.	Total number of anticipating Seniors.	Number of these Seniors with no arrears of College work.	Number of these Seniors with arrears of College work.	Percentage of these Seniors having <i>C, D</i> or <i>E</i> in more than half their College work.	Percentage of these Seniors with complete College record having <i>C, D</i> or <i>E</i> in more than half their College work.	Percentage of these Seniors with incomplete College record having <i>C, D</i> or <i>E</i> in more than half their College work.
1893-94	6	2	4	16	0	25
1894-95	11	3	8	64	66	50
1895-96	20	8	12	55	50	58
1896-97	20	7	13	60	43	61
1897-98	12	3	9	50	0	66
1898-99	30	12	18	77	67	83

YEAR.	Percentage of students obtaining an average of <i>A</i> or <i>B</i> on first-year law work				
	of the whole class.	of Harvard Graduates.	of Harvard Seniors.	of Harvard Seniors with no arrears of college work.	of Harvard Seniors with arrears of college work.
1893-94	29	38	17	50	0
1894-95	19-	32	0	0	0
1895-96	27-	40	25	37	17
1896-97	26	31	15	14	15
1897-98	27	33	25	67	11

This is certainly a discouraging exhibit of the results of the second method of completing the College and Law School courses in six years. The practice of anticipating the whole or the greater part of the work of the senior year is no less a failure than the former practice of anticipating the first-year work of the Law School.

The conviction that the Harvard degree of A.B. should not be cheapened is so widespread and so deeply rooted, that there is little or no chance of the adoption of the plan of reducing the College course to three years. The only practical mode of saving a year in the period of college and professional study would seem, therefore,

to be by a modification of the present practice of granting leave of absence to seniors. If the leave of absence should be granted to all who had fully completed three years' work in college and who desired to enter one of the professional schools of the University, and if the Seniors on furlough should be required to pass satisfactory examinations in all of the first-year work of the professional school in which they registered, as a condition of receiving the degree of A.B. with their college class, the dignity of that degree would certainly not be lowered, and the desired object of saving a year would be accomplished. The Law Faculty would welcome the adoption of this plan.

If, however, the Faculty of Arts and Sciences is not yet prepared to go so far, the Law Faculty would be glad to coöperate with the Faculty of Arts and Sciences in establishing the principle that no person registered in one department of the University and working for a particular degree, shall be allowed to count any extra work in that or any other department towards any other degree. The adoption of this principle would eliminate from the Law School those seniors who register there under the present practice, although having arrears of college work to make up. The figures in the preceding tables justify the conviction of the Law Faculty that the Law School is no place for men who cannot give the whole of their study hours to law school work. This same principle, if adopted, would put an end also to the practice of law students obtaining the degree of A.M. by extra work, either in the Law School or in some other department of the University.

The following table shows the character of the total new entries of all kinds to December 1st for the last two years : —

YEAR.	Entries of all kinds.	Graduates of Colleges.	Harvard Graduates.	Graduates of other Colleges.	Harvard College Seniors.	Non-Graduates.
1897-98 . . .	254	224	94	130	13	17
1898-99 . . .	258	214	80	134	30	14

There is no reason to suppose that the new entries next year will be materially fewer than those of the current year. On the other hand, the third year class of next year can hardly fail to outnumber the present third year class by at least twenty-five. There are two reasons for this estimate. The present second year class is larger than that of last year; and this is the last year in which students may spend their third year away from the School and still obtain our degree.

The following table exhibits the representation in the School, since 1870-71, of the twelve colleges which have been its principal contributors.

YEAR.	Harvard.	Amherst.	Bowdoin.	Brown.	California.	Dartmouth.	Michigan.	Oberlin.	Princeton.	Trinity.	Williams.	Yale.
1870-71	27	4	2	2	1	6	..	..	2	..	3	5
1871-72	34	..	..	7	..	..	..	..	3	1	2	2
1872-73	34	..	1	7	..	..	1	..	1	..	..	2
1873-74	49	1	..	4	1	3	1	..	..	..	4	4
1874-75	63	..	..	..	1	1	..	..	..	..	1	3
1875-76	59	1	3	2	..	1	..	..	2	..	..	3
1876-77	72	3	1	3	..	..	1	..	3	..	1	2
1877-78	79	2	1	2	..	1	1	1	2	..	4	2
1878-79	68	4	3	2	..	3	1	2	2	..	..	4
1879-80	88	4	3	1	..	..	..	3	..	..	..	1
1880-81	82	4	1	3	..	1	..	1	..	1	..	4
1881-82	65	..	1	2	..	3	1	..	..	2	2	8
1882-83	59	1	..	2	..	1	1	1	..	1	..	2
1883-84	74	1	2	..	..	2	3	..	..	3	..	2
1884-85	87	2	1	2	..	..	3	1	..	1	..	3
1885-86	82	2	..	1	..	..	1	4	1	..	1	7
1886-87	86	5	1	3	..	2	2	6	1	1	1	8
1887-88	102	5	2	5	1	..	..	5	1	1	1	8
1888-89	102	9	1	5	1	1	1	2	1	..	..	3
1889-90	123	5	1	6	1	2	..	2	1	2	1	8
1890-91	137	5	..	7	..	3	2	..	3	3	5	7
1891-92	140	5	8	13	2	2	2	2	4	2	8	22
1892-93	132	9	8	14	4	5	4	..	4	2	7	22
1893-94	129	14	6	13	4	5	6	1	5	2	6	19
1894-95	139	16	2	11	7	8	2	2	6	3	7	20
1895-96	171	14	3	19	7	7	3	2	7	4	11	32
1896-97	186	13	6	17	7	11	3	2	15	3	11	32
1897-98	229	15	7	21	5	11	3	2	21	5	9	43
1898-99	210	19	12	15	6	12	2	4	23	3	8	61

In view of this prospective increase of numbers the time has come to make plans and estimates for the enlargement of Austin Hall. The Committee of the Board of Overseers to visit the Law School after alluding, in a recent report, to the Law School surplus added this statement: "The Committee would see, however, with much regret this fund applied, wholly or in large part, to the construction of a new building." Nothing could be more gratifying to the Law Faculty than the erection of the required new building in such a way

as to leave the surplus earnings of the School free for the increase of its intellectual resources.

It is a pleasure to mention a substantial addition to the fund of 'Scholarship Money Returned.' One of our graduates who has won a high position among the lawyers of New York, with a generous disregard of the usual correspondence between payment and repayment, has given to the School more than double what he received in scholarships. It is a noteworthy fact that a majority of those who have returned their scholarship money are now professors in law schools, and that all have had some experience in teaching law.

JAMES BARR AMES, *Dean*.

THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR, — AS Dean of the Medical Faculty, I have the honor to submit the following report upon the Medical School for the academic year 1897-98 :—

Several changes have been made in the plan of instruction, which are mentioned in the reports of the different departments.

An advanced course in Anatomy and a course in Embryology have been added to the list of electives. Hygiene, which was an elective, has been made a required study. The report of one or more clinical cases has been made a part of the examination for the degree in elective Orthopedics and elective Ophthalmology.

Through the liberality of the Harvard Medical Alumni Association, four " Talks on the History of Medicine " were given to the students, on Thursday evenings in January, by Dr. David Hunt. Members of the medical profession were also admitted to these lectures.

The annual reception given by the Faculty to the Instructors of the School, the Committee to Visit the School, the Officers of the Alumni Association, the Superintendents of the Hospitals at which clinical instruction is given, and the medical members of the governing bodies of the University was held on Wednesday evening, October 27, and was fully attended.

By a vote of the Corporation, the Henry Williams Fund was appropriated as the endowment of the Williams Professorship of Ophthalmology, and the bequest of the late William Oxnard Moseley was appropriated as the endowment of the Moseley Professorship of Surgery.

Building. — Fan ventilation was introduced in the dissecting room. The apparatus consisted of a 60-inch electric exhaust fan operated by a three horse-power electric motor. The air was exhausted simultaneously from four ventilators in the roof. This apparatus worked perfectly, completely renewing the air in the room every five minutes, and prevented the dissemination of air from the dissecting room to other parts of the building. Heretofore whenever the dissecting room windows were opened, the air from the room was driven down the hot air pipes and through the hot air system to other parts of the build-

ing. It has also rendered it possible to properly heat the dissecting room as well as ventilate it.

A new projection lantern has been placed in Lecture Room C, for the use of the Anatomical and Pathological Departments. This lantern has a microscopic attachment, so that microscopic preparations on slides can be projected directly on the screen. By this means it is possible to demonstrate to a whole class at once microscopic sections of various kinds.

A new three horse-power motor has been placed in the anatomical assistant's room to operate the lathe and grinding machine.

The animal room in the basement of the Sears Building has been thoroughly cleansed and whitened during the past summer, and has been provided with new, galvanized iron, wire cages, in place of the old cages which were constructed partly of wood and which had become more or less contaminated.

Physiology.—The following investigations have been published:—

The recovery of the heart from fibrillary contractions, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 71–82.

The nutrition of the heart through the vessels of Thebesius and the coronary veins, by F. H. PRATT. *The American Journal of Physiology*, Vol. I, pp. 86–103.

The influence of the heart-beat on the flow of blood through the walls of the heart, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 145–163.

The effect of distention of the ventricle on the flow of blood through the walls of the heart, by Miss IDA H. HYDE. *The American Journal of Physiology*, Vol. I, pp. 215–224.

The reinforcement of voluntary muscular contractions, by ALLEN CLEGHORN. *The American Journal of Physiology*, Vol. I, pp. 336–345.

The movements of the stomach studied by means of the Röntgen Rays, by W. B. CANNON. *The American Journal of Physiology*, Vol. I, pp. 359–382.

The movements of the food in the oesophagus, by W. B. CANNON. *The American Journal of Physiology*, Vol. I, pp. 435–444.

The venomotor nerves of the hind limb, by F. W. BANCROFT. *The American Journal of Physiology*, Vol. I, pp. 477–485.

An analysis of the action of the vagus nerve on the heart, by L. J. J. MUSKENS. *The American Journal of Physiology*, Vol. I, pp. 486–510.

A new method for the study of the isolated mammalian heart, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 511–518.

Studies of Infarctions in the heart, by Dr. W. Baumgarten; of the refractory period and compensatory pause, by R. S. Woodworth; of the path of nerves to the bladder, by Dr. C. C. Stewart, are being prepared for publication.

Investigations into the physiology of the depressor nerve, by A. L. Reagh; into the contractions of smooth muscle, by R. S. Woodworth; into the effect of toxines and animal extracts on the heart, by Dr. A. Cleghorn; into the effect of castration and of injection with testicular extract on growth and muscular activity, by Dr. A. Cleghorn; into the powers of muscular relaxation, by Dr. A. Cleghorn and Dr. C. C. Stewart have been undertaken but are not yet ready for publication.

At the Triennial International Congress of Physiologists, held in the University of Cambridge, England, Professor Bowditch demonstrated an apparatus to illustrate the movements of the eye in accordance with Listing's laws.

Professor Porter demonstrated the beating of extirpated parts of the mammalian ventricle when fed with defibrinated blood; the contractions of the severed apex of the dog's ventricle fed on blood serum alone; (with Mr. F. H. Pratt) the nutrition of the heart through the vessels of Thebesius; a new electrical pump and an electrical recording apparatus (the inventions of Mr. Hofmann, the mechanic of the laboratory).

The experimental work done by the students themselves has been doubled; it is now twelve times that done two years ago. Every first-year student is required to perform more than one hundred experiments on the physiology of nerve and muscle, the circulation, central nervous system, the special senses, etc. The great educational value of this work and the success with which it is pursued by the students has led the Department to request the further extension of experimentation by the students themselves.

The immediate direction of this work is in the hands of four Assistants in Physiology and forms a valuable part of their opportunities. The repetition of fundamental experiments by successive sections of the class and the great variety afforded by the large number of experimenters, secure to those in charge a thoroughness and breadth of training in elementary physiology not easily attainable in other ways. The holders of these positions give the mornings of the collegiate year to research. They are instructed in the ways of framing problems for investigation, in the principles of criticism, in the technical methods of research, and in the manner in which the results of an investigation should be put together for publication.

Instruction is offered also in methods of teaching, including the arrangement of lectures, the division of subject matter between the systematic course covering the entire field and the advanced special lectures, the physiological conference, the use of the projection lantern in physiological demonstration, and the demonstration of physiological experiments to large and small classes. The administration of a large department is explained. Attention is given to the cost of apparatus for instruction and research, the problems of construction and maintenance of plant, the care of storage batteries, the making of lantern slides, the cataloguing of physiological literature, the importation of apparatus, and many other details essential to the successful operation of a physiological laboratory. Men intending to devote themselves to clinical medicine of course give less time to these things and concern themselves chiefly with matters bearing directly on their chosen work. It is evident that these appointments afford an admirable training to those intending to make physiology or any other of the biological sciences a profession. To the physician they offer a training not less valuable in the opinion of those who believe that research in the fundamental studies is the best introduction to the higher walks of medicine.

An active part has been taken in the founding of an American Journal of Physiology, the first number of which appeared January 3, 1898. Volume one has been completed. The Journal has gained a distinguished position in America and in other countries.

Anatomy.—A new feature last year was the fourth year elective course in Anatomy, which was taken by eleven students, whose work was eminently satisfactory. It was abundantly shown that the course is both desirable and profitable.

Last spring demonstrations were given to sections of the first class on the larynx, the eye and the ear.

During the past summer arrangements have been made for facilitating and extending the system of loaning bones to first year students for private study.

A modification of the anatomical law of the State was passed by the Legislature which, it is believed, when fuller practical arrangements have been effected, will considerably increase the amount of dissecting material. Should these hopes be realized, greater laboratory room will be very desirable, if not imperative.

Histology and Embryology.—The collection of preparations for class instruction has been again extended and greatly improved, and now numbers over 10,000 microscopical slides.

During the past year a systematic histological collection has been

begun, which is intended to afford ultimately a complete illustration of microscopical anatomy. A large number of preparations are already completed, but until means are secured to catalogue and arrange them, this collection must lack much of its possible usefulness, as a centre of reference and consultation.

The embryological collection begun last year, has grown steadily, partly owing to the second gift of two hundred dollars from Mr. Walter G. Chase. It now comprises complete serial sections of two hundred embryos. It is in constant use for several lines of research.

Dr. Harris Kennedy presented a set of the Ziegler models, illustrating the development of the human uro-genital system. One of the greatest needs of the laboratory is a supply of other sets of models, which would be of such high value in teaching, that they are felt to be almost indispensable.

Professor Minot has issued the following investigations : —

Cephalic Homologies. A contribution to the determination of the ancestry of vertebrates. *American Naturalist*, Vol. XXXI, 927-943. (Also translated into French, under the title "Contribution à la détermination des ancêtres des Vertébrés." *Archives Zoöl. Experimentale*, Ser. III, Tome V, 417-436.

Die frühen Stadien und die Histogenese des Nervensystems. *Ergebnisse der Anat. u. Entwicklungsges.*, VI, 687-738.

On the veins of the Wolffian body in the pig. *Proc. Boston Soc. Nat. Hist.*, XXVIII, 265-274, Pl. I.

He has also carried forward other researches and made considerable progress in the preparation of an introduction to Embryology, based on the development of the pig.

Dr. A. Schaper has issued the second American edition of Stohr's Text-book of Histology.

He has further continued his researches on the comparative morphology of the cerebellum.

He has published the following papers : —

Experimental studies on the influence of the central nervous system upon the development of the embryo. *Journal Boston Soc. Med. Sci.*, 1898.

Ein neuer Apparat zur Application electrischer Ströme auf mikroskopische Objecte. *Zeitschr. wiss. Mikr.*, XIV, 1898.

The finer structure of the Selachian cerebellum (*Mustelus vulgaris*) as shown by chromo-silver preparations. *Journal Comp. Neurol.*, VIII, 1898.

Dr. Elisha H. Gregory has carried on a research on the development of the cerebrum, which is not yet completed.

The resignation of Dr. H. P. Quincy, who has been an instructor in the Department since its foundation, deprives the Laboratory of highly valued and skilled service, which has contributed very much to the growth of the Department.

The fourth year elective course in Embryology which was offered for the first time, was taken by four students.

Bacteriology.—The following is a brief summary of the work carried on in the Bacteriological Laboratory during 1897-98, in addition to the regular routine of teaching:—

Dr. Ernst retained control of the production of the antitoxine of Diphtheria and the cultural diagnosis of suspected cases of sore throat for the Boston Board of Health until the spring. The work was then transferred to the new municipal laboratory. In the time this work was under Dr. Ernst's control, over 25,000 cultures were examined, and over 10,000 cases of diphtheria were treated with the antitoxine prepared in the laboratory.

Dr. Ernst completed an elaborate summary of the work done on "Infection and Immunity," published under that title in the *Twentieth Century Practice of Medicine*, and the chapter on Surgical Bacteriology to be published immediately as the opening chapter in the *International Encyclopedia of Surgery*.

He has given much time and thought to the advancement of the interests of the *Journal of the Boston Society of Medical Sciences*, which is likely to be an important factor in advancing the interests of the School, containing as it does, at least a brief account of all the work done in the laboratories of the School and its allies.

Much of the following work was done under his supervision:—

Dr. A. K. Stone carried out an investigation on the virulence of the bacilli in cases of diphtheria presenting no clinical symptoms. The results of this investigation were published in the *Journal of the Boston Society of Medical Sciences*, and in the report of the Boston Board of Health, 1897.

Dr. Stone also undertook a short investigation as to the sterility of glycerinated vaccine virus furnished by various foreign vaccine institutes. He has also been engaged in the preparation of various toxins for certain experiments upon the mammalian heart.

Dr. E. A. Darling has carried on previous studies on the etiology of vaccinia, as well as brief series of experiments on the effect of glycerine on vaccine virus, and on the action of glycerine as a bactericide.

Dr. J. N. Coolidge, in connection with Dr. H. A. Cooke, has studied the effect of repeated freezing on the anti-diphtheritic serum (published in the *Journal of the Boston Society of Medical Sciences*, and in the *Transactions of the Association of American Physicians*), and is engaged in carrying on certain branches of the work of Dr. Hopkins on the bacteria of the mouth.

Dr. S. A. Hopkins has continued his studies of the bacteria of the mouth, a small part of the work having been completed and published under the title "A Peculiar Form of Mouth Bacterium." (*Journal of the Boston Society of Medical Sciences; Transactions of the Association of American Physicians.*) Dr. Hopkins also made some experiments with formalin fumes, showing that yeast forms could be grown in a formalin vapor sufficiently strong to kill ordinary bacteria. The attempt is to be made to trace the influence of the bacteria on the teeth, and the part they play in producing caries of the teeth.

Dr. C. G. Page has continued his studies of the streptococci found in scarlatinal sore throats.

Mr. F. P. Gorham, Instructor in Bacteriology in Brown University, carried to completion a study of "A New Pathogenic Chromogenic Bacillus." (*Journal of the Boston Society of the Medical Sciences; Transactions of the Association of American Physicians.*)

Dr. F. P. Denny made a long series of experiments upon the pigment produced by this new bacillus, and is just beginning a study of the occurrence and possible alcohol producing powers of the *Bacillus Coli Communis*.

Dr. H. A. Cooke made a study of a peculiar spore-producing bacillus found in the sputum of a person suspected of pulmonary tuberculosis; this bacillus manifesting the same color reaction as the bacillus of tuberculosis.

Dr. David D. Brough made an elaborate series of investigations on "The Value of Formalin as a Germicide." (*Transactions Massachusetts Medical Society; Report of the Boston Board of Health.*)

Mr. John G. Hubbard began a study, in connection with Dr. Ernst, of the "Jolly-Sambra" process of color photography, in an attempt to apply it to the microscope. The preliminary results were shown at a meeting of the Boston Society of Medical Sciences, and of the Association of American Physicians.

Dr. F. P. Putnam made a study of the action of Arsenious Acid upon the growth of the Typhoid Bacillus and the *Bacillus Coli Communis*.

Mr. A. B. Cunningham began a study of an infectious disease of the trout, which it is hoped to carry on during the winter.

Assistant Professor Marshall A. Barber, of the University of Kansas, investigated the effects of moulds on the morphology and virulence of certain of the pathogenic bacteria, the results of which it is hoped will soon be published.

Chemistry. — The laboratory has been overcrowded, as during the last few years. It has been necessary to provide desk room for three hundred and five students in the space originally planned for two hundred. During the past year there were two hundred and eighty-four students (including graduates) and twenty-one veterinary students working in the laboratory throughout the year. More room is needed both for the routine work of the classes and for special investigations.

The course of instruction to the first class was changed very materially in 1896-97. The course in General Chemistry to students conditioned in this subject was finally abolished, and conditioned students were provided with laboratory facilities in the laboratory of the Dental School, on North Grove Street, on the payment of a special fee.

The laboratory instruction in Physiological Chemistry, formerly taught in the physiological laboratory, was transferred to the chemical department, and first-year students have been given a thorough course in Physiological Chemistry, including the chemistry of the carbohydrates, proteids and fats, the chemistry of digestion and other physiological processes, and the chemistry and microscopy of the urine. Each student has been required to work two hours per week during the entire year, instead of during the second half-year as before.

Professor Wood has been engaged in investigations upon albumosuria. These investigations are nearly completed and the results will be published during the coming year.

Publication of special investigations in the Chemical Laboratory are as follows: —

Contributions to the Detection of Arsenic in Medico-Legal Cases in which the Cadaver has been Embalmed with Arsenical Solutions. By Professor WOOD. *Journal of the Boston Society of Medical Sciences*, March, 1897.

Description of the largest Cystin Calculus ever reported. By Professor WOOD. (The Calculus was removed by Prof. J. C. WARREN.) *Journal of the Boston Society of Medical Sciences*, February, 1898.

Effect of Ether on the Kidneys. By Dr. J. B. OGDEN. *Journal of the Boston Society of Medical Sciences*, June, 1897.

Haematoporphyria, with the report of a case. By Dr. J. B. OGDEN. *Boston Medical and Surgical Journal*, February 24, 1898.

Pyonephrosis. By Dr. J. B. OGDEN, with Drs. A. H. TUTTLE and EDWARD REYNOLDS. *Boston Medical and Surgical Journal*, February 24, and March 3, 1898.

Cystinuria. By Dr. J. B. OGDEN. *Boston Medical and Surgical Journal*, April 21, 1898.

An Important Element in the Diagnosis of Tuberculosis of the Urinary Tract. By Dr. J. B. OGDEN. *Medical and Surgical Reporter*, March 12, 1898.

Dr. H. F. Hewes has pursued his work upon the chemistry of the gastric contents, and the micro-chemical reactions and microscopy of the red and white blood cells, the results of which have been published as follows:—

Fifty Normal Blood Counts. *Journal of the Boston Society of Medical Sciences*, May, 1897.

The Analysis of the Gastric Contents. *Boston Medical and Surgical Journal*, November 25 and December 2, 1897.

The Analysis of the Gastric Contents of Fifty Healthy Individuals. *Journal of the Boston Society of Medical Sciences*, April, 1897.

On the Classification of the Leucocytes for Clinical Work. *Journal of the Boston Society of Medical Sciences*, February, 1898.

Urticaria of the Tongue associated with Achlorhydria. *Journal of the Boston Society of the Medical Sciences*, May, 1898.

Experimental Pharmacology. — Dr. Pfaff, with Dr. J. J. Putnam, studied the urines of patients suffering from migrainous headaches and epilepsy. Seven thousand litres of urine, obtained partly from private patients suffering from the above complaints, and partly from inmates of city and state prisons, were used in the work, which will be completed during the coming year.

Dr. A. W. Balch continued the research of the different species of *Rhus*.

Dr. Pfaff wrote the article on Pharmacology of Anaesthetics for the *International Encyclopedia of Surgery*.

Mr. M. P. Vejux-Tyrode made a comparative study of two varieties of *Strophantus*. The result of his work is now in the hands of the printer.

Dr. W. F. Boos has been engaged in the study of the active principle of *Zygadenus Tremontii* and *Zygadenus Venenosus*.

Drs. Pfaff and E. P. Joslin have studied the influence of bile upon the absorption of fats. The experiments were made on man and dog. The results of this research are soon to be published.

Pathology.—A change has been made in the mode of conducting the demonstrations in pathological anatomy which will add to their efficiency. The class has been divided into sections of twenty-five, to whom pathological specimens are demonstrated and explained, the demonstrators passing to each section in turn. This method substitutes individual for class instruction.

In the past year the Pathological Department has received fifteen hundred dollars from Dr. H. F. Sears. Five hundred of this has been expended on the library, and the remainder will be used in providing for certain publications to be issued from the department.

During the year the following articles have appeared or have been accepted for publication:—

Acute Intestinal Nephritis. By Dr. W. T. COUNCILMAN.

The Relation of Pathology to Medicine. By Dr. W. T. COUNCILMAN.

A Histological Study of Typhoid Fever. By Dr. F. B. MALLORY.

A Case of Mycetoma (Madura Foot). By Dr. J. H. WRIGHT.

Tubercular Disease of the Bones and Joints. By Dr. E. H. NICHOLS.

The Pathology of Acute Infectious Osteomyelitis. Dr. E. H. NICHOLS.

Epidemic Cerebrospinal Meningitis. By Dr. A. H. WENTWORTH.

The Minute Anatomy of the Oblongata and Pons of the Chimpanzee, with special reference to their homologies with man. By Dr. E. W. TAYLOR.

Tumors of the Frontal Lobes, with special reference to a case with predominant symptoms of a neurasthenic type. By Dr. E. W. TAYLOR.

Gumma of the Fourth Ventricle. By Dr. E. W. TAYLOR.

Comparative Pathology.—The chief benefit to be derived from this department will consist in the opportunities offered to students and graduates in the laboratory for the comparative study of disease processes in animal life which have a direct bearing on the unsettled problems in human medicine. Pending the enlargement and proper equipment of the laboratory, an elective course of lectures is temporarily offered during the second term on the comparative etiology of Infectious Diseases.

During the past year one graduate student has been at work in the laboratory, and the following articles have been published by Professor Theobald Smith:—

One of the conditions under which discontinuous sterilization may be ineffective. *Journal of Exper. Med.*, 1898 (in press).

Variations in the pathogenic power of tubercle bacilli. *Trans. Amer. Climatolog. Assoc.*, 1898.

Much time was spent during the past year upon investigations which are nearly completed and which will appear during the present school year.

Surgical Pathology.—The changes made in the Department of Surgery during the past year were important.

The course of instruction begins in the second year. It consists in recitations in Surgical Pathology during the first term, and in a laboratory course in Surgical Pathology in the second. In the laboratory the student is enabled to study those subjects which help to fit him for hospital work later on. In this year the student is thoroughly grounded in the principles of Surgery.

In the third year lectures are given by the Professor of Surgery on special and regional Surgery at the School. These lectures are supplemented by clinical lectures at both hospitals and by recitations. The course last year was so arranged that the clinical lectures illustrated the systematic lectures which immediately preceded them. The recitation is an examination of the work of the previous two weeks. The student is thus given systematic training in the practical side of Surgery and is prepared for the purely clinical studies of the fourth year.

Recent bequests and donations make it possible to announce that a Surgical Laboratory devoted to original research in Surgery will soon be organized in this department.

Hygiene.—The research on the disinfectant properties and penetrating power of Formaldehyde gas, referred to in the last preceding report, was published in the January number of the *American Journal of the Medical Sciences*.

Another research referred to, on the sterilization of surgical instruments and catgut, was finished in February and published in the May number of the same Journal.

Dr. Harrington has been engaged in the study of the practical value of the many commercial disinfectants which are so generally used in the sick room for destroying pathogenic and other organisms in the waste products of the body. The test objects employed thus far include typhoid feces, tuberculous sputum, and diphtheritic membrane. The research is still in progress. Dr. Harrington is also engaged in the study of the action of drinking waters on composition water pipes.

Museum. — The chief work of the year has been on the card index of the specimens with numerous cross references. The entire collection, with but few exceptions, has been gone over, and it will be completed this year. A type-written copy of the written part of the catalogue has also been made. This has been done as a safeguard against accident, and also to permit the history of specimens to be used separately in the lecture rooms.

The Kaiserling preparations, mentioned in the last report, have stood the test of time very well, as a whole; but they have lost color a little as was expected. The chief addition to the collection has been in this direction, and three of the cases have already been filled. It is probable that these preparations will have to be replaced from time to time as they fade out.

The collection has been enriched by fifty calculi which were removed by the late Dr. H. J. Bigelow, and other single specimens have been given by persons not directly connected with the School. The collection has been drawn upon for the purpose of obtaining illustrations for articles which have been written and for daily study by the students.

Scholarships. — During the year two new Scholarships have been established.

The Charles B. Porter Scholarship was founded under the will of the late William L. Chase, and one of the three Hilton Scholarships was assigned by the Corporation, until further notice, to the Medical School. This year these Scholarships were awarded to members of the first class by a special vote of the Faculty.

The Scholarships and Fellowships were awarded as follows: —

Barringer Scholarship, No. 1,	W. P. Graves, A.B.,	3d Class.
Isaac Sweetser Scholarship,	W. B. Cannon, A.B.,	2d “
Claudius M. Jones “	R. Collins, A.B.,	2d “
Barringer “ No. 2,	M. Ladd, A.B.,	4th “
Alfred Hosmer Linder Scholarship,	G. B. Magrath, A.B.,	4th “
Faculty Scholarship,	J. T. Callahan,	3d “
“ “	H. G. Wyer, A.B.,	2d “
“ “	D. C. Greene, Jr., A.B.,	3d “
“ “	C. H. Turner, A.B.,	4th “
Eveleth “	H. L. Sanford, A.B.,	2d “
“ “	L. R. G. Crandon, A.B.,	4th “
“ “	W. Healey, Jr.,	2d “
Edward Wigglesworth Scholarship,	F. H. Haskins, A.B.,	3d “
Orlando W. Doe “	G. C. Wilkins,	3d “
Charles Pratt Strong “	C. B. Wormelle,	4th “
Hilton “	A. D. Brewer, A.B.,	1st “
Cheever “	H. B. Jackson, A.B.,	1st “
Charles B. Porter “	E. A. Locke, B.P., A.M.,	1st “
Hayden “	E. J. Davis, A.B.,	3d “

The George Cheyne Shattuck Fellowship was awarded Dr. Alfred Schaper for the continuation of his work on the cerebellum.

The John Ware Fellowship was awarded Mr. A. W. Balch for the continuation of his studies on corn ergot and other researches.

The Charles Eliot Ware Fellowship was awarded Mr. G. B. Magrath for the study of the pathological anatomy of the arteries. No essays were submitted for the William H. Thorndike Prize.

The statistics of the School will be found in the following tables : —

COURSES OF INSTRUCTION, 1897-98.

FIRST YEAR.

Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER, Demonstrator BROOKS, Instructor TENNEY, Assistant LUND, Assistant LOTHROP, Assistant BLAKE, Assistant LORING, Assistant YOUNG. 161 students examined.

Physiology. — Professor H. P. BOWDITCH, Asst. Professor W. T. PORTER, Assistant MUSKENS, Assistant BAUMGARTEN, Assistant STEWART, Assistant WOODWORTH. 144 students examined.

Histology and Embryology. — Professor MINOT, Demonstrator SCHAPER, Instructor QUINCY, Assistant AMES, Instructor GREGORY. 142 students examined.

Physiological Chemistry. — Associate Professor HILLS, Assistant BACON, Assistant OGDEN, Assistant EWALD. 143 students examined.

Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING. 144 students examined.

SECOND YEAR.

Advanced Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER. 134 students examined.

Pathology and Pathological Anatomy. — Professor COUNCILMAN, Asst. Professor MAILLORY, Instructor TAYLOR, Instructor WRIGHT, Assistant NICHOLS, Assistant FROTHINGHAM, Assistant WENTWORTH. 157 students examined.

Clinical Chemistry. — Professor WOOD, Assistant OGDEN, Assistant HEWES. 136 students examined.

Therapeutics. — Instructor HARRINGTON, Instructor PFAFF, Assistant JORDAN. 152 students examined.

Theory and Practice. — Professor FITZ, Instructor CUTLER.

Clinical Medicine. — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Instructor V. Y. BOWDITCH, Instructor SEARS, Instructor VICKERY, Instructor JACKSON, Assistant KNIGHT, Assistant MORSE.

Surgery and Clinical Surgery. — Professor WARREN, Professor C. B. PORTER, Assistant MIXTER, Assistant WATSON, Instructor HOMANS, Instructor GAY, Asst. Professor BURRELL, Instructor MONKS, Assistant SCUDDER, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor C. A. PORTER, Instructor MUNRO, Assistant MUMFORD, Assistant DWIGHT, Assistant PAINTER.

THIRD YEAR.

- Theory and Practice of Medicine. — Professor FITZ, Instructor CUTLER.
136 students examined.
- Surgery. — Professor WARREN, Assistant CONANT, Assistant WATSON, Assistant SCUDDER, Instructor HOMANS, Assistant LOVETT, Instructor C. A. PORTER.
137 students examined.
- Obstetrics. — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HAVEN, Assistant HIGGINS, Assistant NEWELL.
136 students examined.
- Clinical Obstetrics. — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HAVEN, Assistant HIGGINS, Assistant NEWELL.
- Dermatology. — Professor WHITE.
143 students examined.
- Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE.
138 students examined.
- Diseases of Children. — Professor ROTCH, Instructor BUCKINGHAM, Assistant WENTWORTH, Assistant CRAIGIN.
179 students examined.
- Mental Diseases. — Lecturer FISHER, Instructor COWLES.
132 students examined.
- Gynaecology. — Asst. Professor DAVENPORT, Instructor HAVEN, Assistant SWIFT, Assistant REYNOLDS.
131 students examined.

FOURTH YEAR.

- Clinical Surgery. — Professor C. B. PORTER, Asst. Professor BURRELL, Asst. Professor M. H. RICHARDSON, Assistant MONKS, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor MUNRO, Assistant SCUDDER, Assistant E. W. DWIGHT, Assistant MUMFORD.
135 students examined.
- Clinical Medicine. — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Instructor V. Y. BOWDITCH, Instructor VICKERY, Assistant KNIGHT, Instructor SEARS, Instructor JACKSON, Assistant MORSE, Instructor MCCOLLOM.
136 students examined.
- Ophthalmology. — Professor WADSWORTH, Assistant STANDISH, Assistant CHENEY, Assistant JACK.
134 students examined.
- Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.
134 students examined.
- Laryngology. — Instructor DEBLOIS, Instructor FARLOW, Instructor COOLIDGE.
137 students examined.
- Legal Medicine. — Professor DRAPER, Assistant E. W. DWIGHT.
138 students examined.
- Syphilis. — Instructor POST.
141 students examined.
- Orthopedics. — Asst. Professor BRADFORD.
127 students examined.
- Hygiene. — Instructor HARRINGTON.
133 students examined.

Electives.

- Ophthalmology. — Professor WADSWORTH, Assistant STANDISH, Instructor CHENEY, Assistant JACK.
5 students examined.

Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.	1 student examined.
Dermatology. — Professor WHITE, Instructor BOWEN.	54 students examined.
Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE.	26 students examined.
Gynaecology. — Asst. Professor C. M. GREEN.	22 students examined.
Operative Obstetrics. — Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HIGGINS, Assistant NEWELL.	79 students examined.
Operative Surgery. — Professor C. B. PORTER, Asst. Professor BURRELL, As- sistant MIXTER, Instructor MONKS, Assistant LOVETT, Assistant THORN- DIKE, Assistant CONANT, Assistant SCUDDER.	71 students examined.
Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assist- ant DARLING.	27 students examined.
Orthopedics. — Asst. Professor BRADFORD.	10 students examined.
Clinical Microscopy. — Curator WHITNEY.	4 students examined.
Chemistry. — Professor WOOD, Assistant HEWES.	19 students examined.
Anatomy. — Asst. Professor DEXTER.	11 students examined.
Physiology. — Professor BOWDITCH, Asst. Professor W. T. PORTER.	1 student examined.
Embryology. — Professor MINOT, Demonstrator SCHAPER.	4 students examined.

TABLE I.—GENERAL STATISTICS OF THE SCHOOL.

EXAMINATIONS FOR ADMISSION.

		Physic.	Latin.	Eng-lish.	Elec-tive 1.	Elec-tive 2.	Gen. Chem.	Qual. Analysis.	
1897.	{ June	{ Offered	58	59	58	55	58	46	28
		{ Conditioned	12	17	12	6	4	9	14
	{ Sept.	{ Offered	38	45	40	26	30	57	44
		{ Conditioned	3	11	8	6	1	11	9

New matriculants . . . 154 { Graduates in Medicine 11
 Undergraduates 143

Of these 50 % presented a degree in Letters, Science, or Medicine.

The whole number of students in attendance :—

In courses for graduates	59
Fourth Class	117
Third Class	119
Second Class	148
First Class	160
Total	603

	3 yrs. Course.	4 yrs. Course.
Applicants for Degree	2	137
Rejected	0	13
Graduated	2	124

Of the 124 students who received the degree of Doctor of Medicine in the four years' course, 57 received the degree *cum laude*.

	SUMMER COURSES.					GRADUATE COURSES.				
	1894.	1895.	1896.	1897.	1898.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Courses taken	101	110	116	130	118	82	95	108	175	114
Students	93	89	100	110	107	53	50	56	75	60
Receipts	\$2355	\$2725	\$2972	\$3129	\$3360	\$2010	\$2813.33	\$2520	\$3810	\$3780

TABLE II. — FINAL EXAMINATIONS.

			FIRST CLASS.						SECOND CLASS.					
			Histology.		Bacteriology.		Physiology.		Chemistry.		Anatomy.		Path. Anatomy.	
			%		%		%		%		%		%	
1894	Passed	80		96		74		80		94		89		78
	Rejected	32	28	15	13	25	25	27	25	19	16	14	13	31
	Total	112		111		99		107		113		103		109
1895	Passed	139		127		119		116		82		67		58
	Rejected	30	18	32	20	40	25	48	29	10	11	33	9	41
	Total	169		159		159		164		92		100		99
1896	Passed	142		145		136		132		123		131		112
	Rejected	15	9	9	6	27	16	40	23	22	15	23	26	68
	Total	157		154		163		172		145		154		180
1897	Passed	136		111		136		113		123		104		108
	Rejected	11	7	31	22	24	15	47	30	17	12	36	22	64
	Total	147		142		160		160		140		140		172
1898	Passed	129		117		119		121		120		107		111
	Rejected	13	9	27	18	24	10	40	25	16	12	50	30	35
	Total	142		144		143		161		136		157		152

TABLE II.—FINAL EXAMINATIONS, CONTINUED.

THIRD CLASS.										FOURTH CLASS.																					
Theory and Practice.		Surgery.		Obstetrics.		Diseases of Children.		Dermatology.		Gynaecology.		Nervous Diseases.		Mental Disease.		Clinical Medicine.		Clinical Surgery.		Ophthalmology.		Otolaryngology.		Legal Medicine.		Syphilis.		Orthopedics.		Hygiene.	
	%		%		%		%		%		%		%		%		%		%		%		%		%		%		%		%
1894	111	99	108	108	30	0	0	1	0	71	8	8	0			108	3	104	9												
	2	13	11	11	0	0	0	0	0	8	10	0	0			3	10	10													
	113	112	119	119	30	30	1	79	1	79	8					111	114	114													
1895	85	94	88	88	88	1	57	49	19	57	71	11	11	81	0	15	32	11	31												
	4	10	31	31	26	1	7	12	12	7	10	11	11	0		7	32	5	16												
	89	104	119	119	89	89	1	64	61	64	81	81				22	16	16													
1896	95	83	83	83	62	28	80	82	20	80	76	18	2	87	2	97	4	100	2	72	22	91	94	93	93	95	0	92	0		
	6	12	8	8	9	31	21	21	20	9	17	18	2	2		4	2	2	2	20	2	2	0	0	0	0	0	0	0		
	101	95	91	91	90	90	103	89	103	89	93	89	89	89		101	102	102		92	93	93	94	93	95	95	92	92			
1897	128	122	123	123	66	56	136	125	15	136	131	11	0	136	0	89	7	82	12	72	26	91	94	93	93	93	89	1	89	1	
	14	19	18	18	13	85	22	22	15	8	17	11	11	136	136	7	11	11	12	26	2	2	2	2	3	3	1	1	1		
	142	141	141	141	151	151	147	147	147	144	148	148	148	148		96	93	93	98	98	93	96	96	96	96	94	90	90			
1898	126	128	118	118	154	14	121	115	19	121	124	7	5	128	3	122	10	130	3	115	14	132	122	134	134	139	127	1	127	120	
	10	9	18	18	25	14	10	28	19	10	7	7	4	4		14	5	5	3	19	14	2	15	4	2	2	0	0	0	13	
	136	137	136	136	179	179	143	143	143	131	131	131	131	132		136	135	135	134	134	134	137	137	138	141	141	127	127	133	133	

TABLE II. — FINAL EXAMINATIONS, CONTINUED.

FOURTH CLASS. — ELECTIVES.																													
	Ophthalmology.		Otolaryngology.		Gynecology.		Dermatology.		Diseases of Nervous System.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Orthopedics.		Clinical Microscopy.		Chemistry.		Anatomy.		Physiology.		Embryology.		
	%		%		%		%		%		%		%		%		%		%		%		%		%		%		
1894	Passed	5	8	19	6	5	15	10	20	5	6	1	10	1	20	5													
	Rejected	0	0	3	0	0	1	1	1	0	1	6	1	1	1														
	Total	5	8	22	6	5	16	11	11	5	7	7	11	21	23	11													
1895	Passed	1	3	16	9	2	13	7	7	2	1	7	2	22	3	11													
	Rejected	0	0	0	2	1	1	2	1	50	1	1	2	2	3														
	Total	1	3	16	11	3	14	9	9	50	2	2	9	4	26	11													
1896	Passed		2	64	17	7	58	20	20	1	3	5	0	0	1	5													
	Rejected		0	5	2	1	3	0	1	12	3	5	0	0	1														
	Total		2	69	19	8	61	20	21	13	4	10	5	0	2	5													
1897	Passed	5	1	28	6	6	55	46	45	6	23	31	3	6	4	2	4	0	4	0	6	0							
	Rejected	0	0	5	0	0	2	0	1	0	1	3	3	0	1	2	0	0	0	0	0	0							
	Total	5	1	33	6	6	57	46	46	6	6	34	6	6	5	4	4	0	4	0	6	0							
1898	Passed	5	1	19	45	21	71	70	24	19	8	10	1	1	24	11	10	0	4	0	17	11	11	0	1	0	4	0	
	Rejected	0	0	3	9	5	19	1	3	5	8	1	1	1	3	11	0	0	0	0	2	11	0	0	0	0	0	0	
	Total	5	1	22	54	26	79	71	27	24	24	18	2	2	27	22	10	0	4	0	19	22	22	0	1	0	4	0	

The great need of the School is an increase in the space devoted to the several laboratories. There is not room enough for the proper accommodation of the regular students of the School, and much additional space is needed for graduate students and for special investigations. The lecture rooms are also overcrowded. It would seem as if steps should at once be taken with a view to either enlarging the present building, or obtaining a new site on which a much larger and commodious structure can be erected.

WILLIAM L. RICHARDSON, *Dean*.

THE DENTAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — AS Dean of the Dental Faculty I have the honor of presenting my report upon the Dental School for the academic year 1897-98 : —

One hundred and thirty-two students matriculated, distributed as follows : —

Seniors	44	Freshmen	47
Juniors	39	Graduate Students	2

During the year five students withdrew from the School, three on account of financial troubles, one on account of ill health, and one to enter the McGill Medical School, thus leaving one hundred and twenty-seven students who completed the course. Of the forty-three candidates for the degree thirty-seven were successful, four of the number receiving their degree out of course.

The residences of the 132 men who registered were distributed as follows : —

New England States . . .	110	New Brunswick	2
Middle States	1	Nova Scotia	2
Southern States	2	P. E. Island	1
Western “	3	New Zealand	1
England	5	Australia	2
Canada	2	Russia	1

The important changes made in the Course of Instruction are as follows : —

In Physiology the laboratory course has been increased by 100 experiments.

In Anatomy the dissection of two parts of the cadaver has been made obligatory, and no student is permitted to take the examination unless his dissections are satisfactory to the Professor of Anatomy.

Catalogue. — In the early part of 1896 the President suggested the publishing of a Quinquennial Catalogue. The Dean made known this suggestion to the Alumni Association, who promptly acted upon the matter, and instructed the Secretary to prepare the catalogue for publication. Dr. Boardman entered at once upon the work, and after a most thorough and exhaustive research, covering a period of

eight months, produced a catalogue that is a credit to himself and of great value to the school.

Museum and Library. — The Museum has been enlarged by the addition of twenty-six specimens illustrating pathological conditions of the mouth and teeth.

The small library has been regenerated. Seventy-eight books have been returned to the School from the Medical Library Association where, by vote of the Faculty, they were deposited some years ago. Thirty-four new volumes have recently been added by binding the various numbers of periodicals that have been given to the School by the Alumni; and there are some twenty volumes of miscellaneous books, making a total of one hundred and thirty-two volumes.

Alumni Day was observed at the school building for the second consecutive time on Monday, June 27, with an attendance of one hundred and forty-three. Work of the classes was shown, papers were read, and clinics given by past graduates, and the present methods of teaching were explained to the Alumni. The banquet in the evening was largely attended, and the Secretary reports that the meeting was the most successful within the Association's history, that the treasury was shown to be in a flourishing condition, and that the interest in the School of every member of the Association is greater than ever and is increasing.

Emergency Corps. — In March 1897 the Faculty voted to organize an Emergency Corps to be formed from selected men from the Senior class, for the purpose of giving dental aid to the sick poor at their homes or in the hospitals of the city. This work was entrusted to a Committee consisting of Dr. Potter (chairman), Dr. Smith, and Dr. Stanton. Fifteen men were selected and a complete set of instruments, together with medicine cases and leather bags were provided. The chairman of the Committee gave special attention to the corps, instructing them about their work and as to their responsibility. To facilitate the work, which is at present restricted to the hospitals and a small area of the city, a telephone was put in to the school building. The corps has done good and efficient service, and has been especially helpful to the sick soldiers suffering with dental ailments in the hospitals. Dr. Potter or Dr. Moriarty have attended personally in cases of importance. The corps has also been very useful during the vacation season in attending to the cases of fractured jaws. The value of this work cannot be over-estimated; but we cannot be expected to bring it, or the rest of the charitable work of the School, to its highest efficiency, while obliged to depend upon the ordinary receipts of the School to meet expenses.

COURSES OF INSTRUCTION, 1897-98.

FIRST YEAR.

Descriptive Anatomy. Four times a week till Christmas. Three times a week in January. — Professor DWIGHT. Twice a week after November. — Assistant Professor DEXTER. Recitations, once a week. — Dr. TENNEY.

Practical Anatomy with exercises in Dissection. Eight hours daily from October 1 till May. Demonstrations. — Drs. BROOKS, TENNEY, LUND, B. B. BLAKE, LOTHROP, and WARREN.

Sytematic and Experimental Physiology. Four times a week during the first half-year. Six times a week during the second half-year. — Professor BOWDITCH and Assistant Professor W. T. PORTER.

Laboratory exercises in Experimental Physiology. Twice a week in sections. — Assistant Professor PORTER and Mr. LOCKE.

General Chemistry, twice a week during the first half-year. Twice a week during the second half-year. — Professor HILLS and Mr. BACON.

Practical exercises in the Laboratory. Twice a week during the first half-year. Twice a week during the second half-year.

Histology and Embryology. Lectures twice a week during the first half-year. — Professor MINOT.

Laboratory exercises twice a week during first and second half-years. — Professor MINOT and Drs. QUINCY, SCHAPER, GREGORY, and AMES.

Bacteriology. Eighteen lectures in the second half-year. — Professor ERNST.

Practical Laboratory work. Eighteen hours for each student during the second half-year. — Professor ERNST.

Operative Dentistry. Preliminary. Six hours a week during first half-year. — Drs. UPHAM and TAYLOR.

SECOND YEAR.

Operative Dentistry. Lectures twice a week. — Professor FILLEBROWN and Dr. POTTER.

Practical work in the Operative Infirmary fifteen hours a week throughout the year. — Drs. FARRINGTON, WHITE, and PARKHURST.

Mechanical Dentistry and Orthodontia. Lectures once a week. — Professor SMITH. Practical work in the Laboratory. Eighteen hours a week under Drs. McMEEKIN and CHASE.

Dental Pathology. Once a week. Professor BRACKETT.

Oral Anatomy and Physiology. Lectures and Demonstrations. Once a week. — Professor STANTON.

Materia Medica and Therapeutics. Once a week. — Professor BRIGGS.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations. Once a week. — Dr. COOKE.

THIRD YEAR.

Operative Dentistry. Twice a week. — Professor FILLEBROWN.

Clinical lectures and lectures on Jurisprudence and the Conduct of Practice.
Once a week for fifteen weeks. — Dr. CLAPP.

Clinical Instruction once a week for six weeks. — Dr. WERNER.

Practical work in the Infirmary fifteen hours a week. — Dr. PAUL, Demonstrator,
and Drs. BLAISDELL, TAFT, EDDY, BRADLEY, BOARDMAN, and WYLLIE,
Instructors.

Clinical demonstration once a week for six weeks. — Dr. WERNER.

Mechanical Dentistry and Orthodontia. Lectures and Orthodontia clinics once a
week. — Professor SMITH.

Clinical Instruction once a week for six weeks. — Dr. STODDARD.

Laboratory exercises eighteen hours a week. — Dr. MORIARTY, Demonstrator,
and Drs. HALEY, ELDRED, BURNHAM, HAYDEN, BIXBY, and CROSS,
Instructors.

Surgery. Once a week, for one month. — Professor WARREN.

Oral Surgery. Lectures by Professor FILLEBROWN.

Operative Surgery at the Massachusetts General Hospital and Boston City
Hospital one day each week.

Surgical Pathology. Lectures once a week for ten weeks. — Dr. MONKS.

Neurology. Once a week for four weeks. — Dr. WALTON.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations once a
week. — Dr. COOKE.

The following table shows the classification of the work done in
the Operative and Mechanical Departments:—

OPERATIVE DEPARTMENT.

Surgical clinics by Professor FILLEBROWN.

Necrosis	Number of cases operated upon	9
Abscess	“ “ “ “	13
Anchylosis of Jaw	“ “ “ “	1
Perforation of Palate . .	“ “ “ “	1
Tumors of Tongue . . .	“ “ “ “	1

INFIRMARY.

Number of patients treated for diseases of the teeth . .	7,088
Total number of Operations performed	18,154

MECHANICAL DEPARTMENT.

SERVICE TO PATIENTS.

Sets of artificial teeth	433
Splints for fractured jaws	6
Splints for cleft palate operations	4
Obturator and appliances for cleft palates	8
Artificial noses	4
Cases of Irregularity treated and corrected	84
Orthodontia appliances	156

Under direction of Drs. COOKE and STODDARD : —

Gold caps	10
Porcelain tips	2
Porcelain crowns	99
Bridges	39

MECHANICAL LABORATORY — PRACTICE WORK.

Specimens crowns and caps	443
“ bridges	114
“ porcelain tips	30
“ “ inlays	20
Sets of artificial teeth	200
Splints for fractured jaws	16
Obturator for cleft palates	2
Orthodontia appliances	38
Artificial noses	2

EUGENE H. SMITH, *Dean.*

THE VETERINARY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY :

SIR, — As Dean of the School of Veterinary Medicine I have the honor of submitting the following report for the year 1897-98; the sixteenth of the School's existence.

The number of students at the beginning of the year was thirty-four; of these ten entered in 1895, eleven in 1896, and thirteen in 1897. Two of the last were put upon the list of Specials, one of them being a graduate of the Massachusetts Agricultural College who had also attended the Veterinary School of McGill University for one year, where he obtained good class standing. During his one year of residence in this School he passed an acceptable examination in every subject but one of the entire course. The other student upon this list is a Canadian Veterinarian who came here to take some of our courses, as a post-graduate student.

Of the eleven members of the first class, one withdrew very early in the first half-year; the remaining ten finished the work of the year. Of the eleven members of the second class all completed the year's work; but one of them was unsuccessful at the final examinations in June. The ten members of the third class all presented themselves for the final examinations; and nine of them were successful.

There were fifteen candidates for the degree; ten of the class of 1898; one each from the classes of 1895, 1896 and 1897, one from the second-year class and one special student. Of these, ten were successful and received their diplomas from the President of the University at Cambridge in June.

The statement of the Treasurer of the University for 1897-98 shows that the School received for term-bills no more than \$4,874 as against \$6,277.39 for the previous year, to which sum at that time, graduation fees amounting to \$660 were added, making a total income of \$6,937.39 from students in 1896-97. This is a falling off of \$2,063.39 for the present year and of \$1,654.10 in comparison with the income of 1895-96.

As explained in this report last year our tuition fee was recently raised from \$100 to \$150 a year, and at the same time the further collection of a fee for graduation was discontinued. The present

year is the first one in which this change has taken full effect, although its influence has been felt since the close of the year 1894-95. The proposed raising of the tuition-fee had been advertised for several years before it went into effect. Whether or not this influenced intending students to take advantage of the smaller fee cannot be shown; but the facts are that at the beginning of the year 1894-95 twenty-nine new students entered the School, and the final effect of this large class upon the total income appeared in the Treasurer's report, as indicated above.

A considerable effort has been made to ascertain, so far as possible, the opinions of graduates and others who would be likely to be informed upon this point; and, without exception, the expressed feeling is that the extra fee, amounting in the three years of required residence to \$120, turns away a considerable number of intending students who would come hither were the fee no more than \$100 a year. It should be further considered that there is no other American Veterinary School, whether connected with a university or not, that charges so much for tuition as the Harvard School; and that to by far the larger number of students attending veterinary schools the difference in the amounts demanded here and elsewhere seems a considerable item. I recommend that the fee be reduced to that demanded previous to 1895-96.

The two Scholarships were awarded for the year; one to a member of the third, the other to a member of the second class. These two Scholarships, each of them paying the entire amount of the tuition fee of the student who holds it for the year, were established by the Faculty, several years since, for the purpose of enabling meritorious students who had met with unexpected financial difficulties, to continue their studies in the School. Their award simply means that the School gives free tuition to these men.

This School is the only one that is maintained in connection with a university, which is without endowments in aid of poor students. The school at Cornell receives \$25,000 a year, which provides free tuition for all students, residents of New York State, that may wish to attend and can pass the required admission examinations.

The school at the University of Pennsylvania received, in 1891, \$25,000 with which twelve free Scholarships, in the gift of the Governor of the State, were established.

Our School has voluntarily gone as far as it can in this direction; graduates of the Massachusetts Agricultural College being allowed to go up for their final examinations after two years of residence, instead of three. Endowment in this direction would not only help

the School, but would also be a great aid to many capable, deserving young men. There is another advantage of this sort, which is enjoyed by the other schools but not by the Harvard School, namely the giving of special prizes in money, books, or instruments, to students who excel in some special direction. A few years since we offered and gave prizes for the best dissections of any kind, that would make desirable additions to our museum, or that could be used to advantage by the instructor in class work. These prizes were well competed for, and gave the good results which were sought and expected; but the offer had to be withdrawn, because we could not afford to maintain the practice further; and no one came forward to help us. One hundred dollars a year would be both helpful to students and of benefit to the School if expended either in this direction or in stimulating the preparation of good pathological specimens, prepared so that they could be added to the museum and availed of for illustrating class work.

It is now twelve years since our first graduates went out into the world to fight the professional battle for themselves; and an attempt has recently been begun to learn what success they have met with. The results of this inquiry will soon be published in detail, and will prove to be of great interest, not only to our own graduates, but to those of other schools, as well as to intending veterinary students and those interested in veterinary education generally. It is remarkable how quickly a great proportion of these men, entirely dependent upon their own exertions for a livelihood, have succeeded in establishing themselves well, on a first trial,—many times in places in or near large Eastern cities that seemed already well supplied with veterinarians,—and have since been able not only to maintain themselves, but also to undertake the maintenance of families. Several of them hold, and have held for a considerable time, positions under the general government, entrance to which service is through competitive examination only. Some of them have been appointed to local positions of honor and trust. All this goes to show that the field for young graduates in this profession, is large and that it becomes profitable sooner than is the average experience of young graduates in the older professions. It is the youngest of the professions, but it is well-suited for ambitious and capable young men of good general and special education, but of limited means and influence. The large endowments given the Veterinary Schools in the University of Pennsylvania and Cornell University show that the value of the new profession to the community at large has obtained some recognition but the Harvard School is still without endowment of any sort.

Month.	Genito-Urinary.			Locomoto-ry.			Respira-ry.			Circula-ry.			Nervous.			Digestion.			Special Sense.			Operations.			Skin Diseases.			New Growths.			Accidents, Injuries.			Glan-ders.	Other Animals.	Total Num-ber Cases Month.
	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.						
August.	5	23	11	39	7	1	18	7	0	0	1	0	2	3	0	61	24	16	2	28	1	45	22	31	0	40	4	9	4	1	46	10	3	2	Parrot. Hen. Woodch'ck.	469
September.	4	5	19	29	7	0	9	1	2	1	0	4	2	4	2	24	23	14	6	16	1	19	14	23	0	22	3	8	9	0	38	22	3	4	.....	338
October.	3	12	22	26	5	1	4	5	3	4	9	0	11	1	0	33	19	3	1	3	1	13	13	30	2	18	5	22	6	2	72	11	5	2	Ferret. Pigeon. Rabbit (9).	383
November.	1	3	9	31	1	0	0	4	3	8	3	2	2	10	1	27	12	1	1	12	2	29	11	20	0	8	3	4	10	10	54	14	8	1	Ferret (2)	307
December.	21	10	8	5	2	1	2	2	3	1	3	1	0	4	0	22	12	3	0	14	0	22	18	13	0	6	2	5	14	16	15	4	2	.....	236	
January.	0	1	13	20	4	0	5	3	0	2	4	0	7	0	16	13	4	3	6	5	15	7	18	0	7	4	10	5	24	12	7	2	2	.....	219	
February.	0	2	8	20	5	0	0	4	4	1	3	0	4	2	17	10	6	5	31	5	12	9	13	0	11	0	2	11	21	31	7	4	1	.....	249	
March.	0	3	16	47	2	7	6	4	0	2	3	3	0	9	1	45	18	4	1	41	0	36	11	19	6	14	10	5	8	28	46	30	5	0	.....	430
April.	0	2	9	32	4	0	2	10	0	2	5	1	26	20	5	2	15	17	19	8	17	19	8	18	2	20	6	7	2	2	30	28	2	1	White Rat. Gazelle.	343
May.	0	1	12	47	6	3	4	11	0	0	2	2	20	11	4	2	7	3	25	7	3	25	10	25	4	8	1	5	0	0	50	12	8	1	.....	317
June.	2	2	10	57	4	2	0	1	4	9	12	0	0	3	1	22	22	2	2	6	1	34	14	12	4	4	3	11	5	1	39	18	3	0	Mule.	311
July.	2	10	5	26	5	4	7	4	1	11	7	0	0	1	3	26	18	11	0	9	0	19	7	23	2	17	9	3	1	2	38	39	13	0	Mule.	324
Totals.	38	74	142	379	52	19	57	56	20	42	53	9	65	77	19	297	193	84	65	181	36	298	144	245	20	175	50	91	66	105	472	213	60	16	20	3926

H. = Horse.

D. = Dog.

C. = Cat.

We need a good building, with ample class-room and laboratory facilities; upon a good accessible street; and means with which to supply these rooms and laboratories with modern accessories. Eighty thousand dollars would buy the land, put up the building and supply the class-rooms and laboratories with the necessary fixtures and materials.

THE FREE CLINIC.

This institution, which is really a free dispensary for animals belonging to poor people, whose livelihood often depends on the services of their animals, and whose attachments to their animals are just as strong as those of well-to-do people, was first established three years ago through the instrumentality of the Committee to Visit the Veterinary School.

During the past year some change in the direct management of this division of the School was made necessary by the resignation of Dr. Cronon; and in December the Corporation placed the work in my hands.

I am gratified to be able to report that, owing to the liberality of the Visiting Committee, who have continued to pay the rent upon the building; and to the thoughtful kindness of those who have subscribed money for its support, the clinic has been conducted at small cost to the department, and has continued to administer relief to a large number of animals, as is shown by the table on the opposite page.

The value of this institution as an adjunct to the teaching resources of the School can scarcely be appreciated by those who do not follow the work done there, — the variety of cases, the opportunity given the students for making careful examinations of them, and of forming their own opinions upon them, of prescribing for them; and of seeing the results of their treatment, as the patients are brought in from time to time. This is the only way in which undergraduate students can be converted to be self-reliant practitioners. The students themselves appreciate this and their interest in the cases is shown by the care with which their work is done and the pride they take in its results.

CHARLES P. LYMAN, *Dean.*

THE VETERINARY HOSPITAL.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to submit the report concerning the Hospital of the School of Veterinary Medicine for the year 1897–98.

Two changes were made in the personnel of the Hospital staff during the year: Dr. Wesley L. LaBaw, who had performed satisfactorily the duties of Assistant Surgeon since February 1892, resigned that position on October 1, and Dr. Albert J. Sheldon was appointed in his place. This appointment has proved an advantageous one, although the duties performed by Dr. Sheldon are not entirely the same as those of Dr. LaBaw.

At the opening of the year the competition for the positions of House Surgeon was very sharp. Of the senior class there were appointed Messrs. Dennen, Blakely and Smith, each of whom faithfully and diligently performed their duties; to their efforts much of the success of the past year is due.

With the opening of the Hospital in 1883 there was established a "Subscription Plan" similar to that which has been for many years successfully pursued at the Royal Veterinary College in London. Under this plan annual subscribers received services at the Hospital at certain discounts from the usual rates. This arrangement was in operation here until August 1, 1894, when, for various reasons, it was abandoned, as stated in this report for 1894–95. The beneficial results that it was expected by some would follow the discontinuance of this plan not being apparent, it was determined, on January 1, 1898, that the department should again solicit annual subscriptions to the Hospital.

The experience of the year has again shown that the space allotted to patients in the Hospital is at times quite inadequate to the demands made upon it. This was especially apparent during some of the winter months, when provisional accommodations for horses were made repeatedly to such an extent as to occupy the whole of the operating room for days together.

It has been possible to enlarge the space for dogs by cutting down still further the hay and straw room. This change has resulted in greatly improving the dog quarters, and in providing for the proper

care of a larger number of dogs than heretofore. Storage for the main stock of hay and straw has been obtained in a building at a distance from Village Street.

The volume of business shows a marked increase over that of the previous year, as may be seen by the following table: —

MONTH.	Genito-Urinary.	Locomotory.	Respiratory.	Circulatory.	Nervous.	Digestive.	Special Sense.	Operations.	Skin Diseases.	New Growths.	Total.
November . .	2	24	6	..	6	16	6	21	5	3	89
December . .	2	29	15	2	6	16	5	38	7	6	126
January . . .	..	24	15	..	..	14	..	29	8	3	93
February . .	1	33	10	..	7	5	4	19	4	6	89
March. . . .	1	26	4	1	7	22	2	27	11	10	111
April	1	35	13	..	2	22	3	25	7	5	113
May.	1	30	11	..	3	16	9	33	6	9	118
June	3	36	8	..	3	14	3	27	9	4	107
July. . . . .	..	31	4	..	8	8	2	7	9	..	69
August . . .	..	16	3	..	5	18	5	22	20	3	92
September . .	1	20	2	..	3	7	1	15	7	..	56
October . . .	1	24	5	..	1	12	5	35	11	7	101
Totals . . .	13	328	96	3	51	170	45	298	104	56	1164

This increase has enabled us to furnish a larger number and greater variety of cases to the clinical instructors in the school, the materia being especially ample in Influenza, Pneumonia, Pleurisy and in diseases and injuries of the feet.

Special instruction in the administration of medicines, dressing, and bandaging has been given by one or more members of the Hospital staff every morning from eight until ten o'clock to members of the third class. The usual clinical lectures have been given at ten o'clock every morning, to members of the second and third classes, by Drs. Osgood, Howard, Leonard, Sheldon and Foss.

In addition to the animals received into the Hospital there are numbers of others, which, while they live at home, are brought to the Hospital from day to day for treatment and observation. This process furnishes the "out clinic," and is a further valuable adjunct to the teaching material. The cases exhibited under this head amounted to 762, and embraced the usual variety of illnesses, accidents, and lamenesses, all of which received the necessary treatment, including 298 surgical operations.

Besides these opportunities, instructive out-visits are made, as occasion offers, to which members of the third class are taken in rotation.

In October an operating class was organized under the direction of the Surgeon in charge, for the benefit of third-year students. These exercises were held once a week, on Saturdays, from ten until one o'clock; they were fully attended and highly appreciated, and proved to be of great value to every member of the class.

The financial results of the Hospital show a marked improvement. The total receipts from Hospital earnings were \$16,524.10 as against \$14,643.34 received in the year before, a gain of \$1,880.76. The changes made in the Hospital staff, as herein described, resulted in a reduction of \$1,400 in the salary list, and there was also a reduction of \$1,717.15 in the wages account. This last economy was made possible by the discontinuance of the shoeing forge at the Free Clinic.

While the receipts from the School were \$3,017.06 less than for last year, the increased earnings of the Hospital and the reductions made in the salaries and wages account, together with other minor savings, resulted in a deficit of no more than \$1,628.31 for the year 1897-98, as against one of \$5,487.34 for the previous year; an absolute gain of \$3,859.03 for the year. In other words, had the School brought, as it did the year before, \$7,918.16 to the general account of the department, there would have been shown an absolute surplus of \$1,388.75 as a result of the work for the year.

FREDERICK H. OSGOOD,

Surgeon in Charge.

THE BUSSEY INSTITUTION.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR, — I respectfully submit the following report on the School of Agriculture and Horticulture for the year 1897-98 :—

Instruction was given in Agriculture by Mr. Hersey, in Horticulture and the rudiments of Landscape Gardening by Mr. Watson, in Agricultural Natural History by Mr. Morse, in Agricultural Chemistry and in Qualitative Chemical Analysis by Professor Storer. The course in Natural History in its Applications to Agriculture and Horticulture, given this year for the first time, has proved to be highly acceptable to the students and of great advantage both to the students and the School.

A somewhat smaller number of students than usual attended the courses of 1897-98, viz. eleven, instead of the numbers fifteen to seventeen which, with remarkable constancy, had been enrolled each year during the five previous years. Happily, this deficit has been much more than made good for the coming year by an unusually large registration.

One part or number of the Bussey Bulletin (VII of Vol. II) was published in the summer vacation.

On the farm a large and commodious barn, for the storage of hay and the keeping of horses, has been constructed to replace those burned in the summer of 1897 by an incendiary fire.

F. H. STORER, *Dean.*

THE LIBRARY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report on the Library of the University for the year 1897-98:—

The death of Justin Winsor, Librarian, on October 22, 1897, deprived the Library of a director, who during the twenty years of his administration (since September 24, 1877) had pursued vigorously and consistently a sagacious policy which he had set forth clearly at the beginning, a policy, the fundamental purpose of which was to secure for all members of the University the most complete and convenient access to the books of the Library consistent with orderly methods of caring for them. The whole administration of the Library as shown in the shelf classification, the catalogue and its printed cards, the method of charging books, the admission of advanced students to the book-stack, the collections of reference books and periodicals, the reserved books in the Reading-room, and in other details was directed to secure this end. It is interesting to read Mr. Winsor's first two reports and to notice how completely the measures there proposed have since been carried out.

In the mean time, however, other new problems have come to the front, and some of the most interesting are those connected with the recent development of laboratory and class-room libraries, their proper supervision, the relation of these and of the larger departmental or professional libraries to the College Library, and the final influence of both upon the question whether we are to continue to have one great library embracing all subjects, or are finally to split up our great library into a number of smaller collections devoted each to its own field, and made, in that field, as complete as possible. In some respects the answer to these questions is plain. It is clear, for example, that the College Library should never attempt to have an extensive legal or medical collection. The 45,000 volumes of the Law School Library are more conveniently located in the Law School building than they could possibly be anywhere else, and duplication to any large extent is unnecessary in the College Library. Accordingly, when the Law School began this last year to complete its collection of the annual statute laws of all the States of the Union, the College Library properly turned over to it all its sets

of sessional laws, partial or complete (except the statutes of Massachusetts, compiled laws, and pre-revolutionary matter), and will refrain, in future, from buying or keeping any volumes of this kind, leaving the field to be occupied by the Law School. In the same way, a large medical collection is of real value only to professional students, but the Medical School is in Boston and is well served by the Boston Public Library and other Boston libraries. The College Library therefore limits its purchases in medicine to a few works of reference and to such books as are needed by students of psychology, hygiene or natural science. Several other subjects, however, such as theology, astronomy, botany, zoölogy, geology, and anthropology, in which the College Library has extensive collections are also strongly represented by a separate departmental library, viz., at the Divinity School, the Astronomical Observatory, the Herbarium, the Museum of Comparative Zoölogy, and the Peabody Museum, and the student in any of these fields has to go to at least two places to get a complete view of the material at his command. Undoubtedly it would be an advantage if a complete collection of the material in each great subject could be found in one place, yet each of the departments named has its established library and receives gifts from its friends or in exchange for its own publications. Moreover each needs a more or less extensive working collection, so that the question of transferring these libraries bodily to a central library will never be seriously considered. On the other hand, the question arises, should the books on these subjects in the College Library be transferred to the department libraries, leaving in the College Library only a few popular general works and whatever may be already duplicated in the special library? Some steps in this direction have been already taken; many sets of astronomical and meteorological observations have been transferred to the Astronomical Observatory; many floras were sent several years ago to the Herbarium; in June last the Library Council consented to transfer to the Divinity School Library books on New Testament criticism, philology, and exegesis so as to make that library complete in this specialty; and it considered seriously the suggestion that a complete geological collection should be formed either at the Museum or at the College Library, by putting together the books (not duplicates) in the College Library, the Museum, and the separate Whitney Collection. Similar suggestions will doubtless be made in the future, and the policy of the Library in this respect should be made clear.

The plan of separate special libraries was adopted from the beginning by Johns Hopkins University and the University of

Chicago. The arguments in its favor are: (1) more convenient use of the books by the workers in the department concerned, because the collections, being comparatively small, can be more easily handled, and can generally be installed in such a way that more table space in close proximity is available; (2) in the case of scientific subjects, the possibility of having the books in or near the laboratory, which is the natural headquarters for scientific work. The arguments against such a policy are: (1) increased difficulty of access for persons not immediately connected with the department, the result either of want of familiarity with the arrangement and the rules of the special library, or of its being open less constantly or lending its books less freely than the central library; (2) less careful supervision of the library, or else increased expense for its administration, and in most cases less security from fire; (3) the loss of the reënforcement which each department of a general library receives from all related departments, unless the special library at considerable extra expense goes outside its own special field and acquires works which also belong in other departments and must be duplicated there (the publications of learned societies and many other important periodicals of too general a nature to be included in a department library have, of course, to be left in the central library); (4) a tendency to narrowness which the student who works in a well-equipped comprehensive library is likely to escape; (5) the growth of the special collection beyond a convenient size, while its earlier treatises and old editions become superseded by new ones, the natural result of which is that the central library is asked to take back the less useful books with which the special library no longer wants to be cumbered. These various considerations have more or less weight in different cases according to the subject, according to the situation and size of the library, and according to the habits and traditions which have prevailed in the College; but they make it fairly clear, as it seems to me, that in general the ideal arrangement is to have a strong and comprehensive central library, with commodious and conveniently situated study-rooms for professors and advanced students, supplemented by well-selected working libraries in the departments.

Advantageous modifications of this ideal are not far to seek. The Law School Library is a notable exception; it naturally gathers the comprehensive collection in that department, and the College Library keeps selected books only. Floras are properly transferred to the Herbarium, because they are the working tools of the systematic botanist just as truly as reagents are of the chemist; but to cut off

the rest of botany from the general library and install it at the Herbarium would deprive the botanist of the use of the related collections of biology, palaeontology, agriculture, organic chemistry, etc., in the College Library. The collections of astronomical observations naturally go to the Astronomical Observatory (though they lose, thereby, the protection of a fire-proof building), because a large corps of computers is working there on precisely similar matter; but if the treatises on astronomy were sent thither also, the student of astronomy, who followed them, would leave behind him in the College Library the transactions of many learned societies, and collections on navigation, mathematics, geology, physics and spectrum analysis, which would have material bearing directly on his work, while all students in these other lines who came to the central library would find their material incomplete because astronomy had been taken away.

New Testament criticism seemed a fairly restricted and definite subject, but when we undertook to select from the College Library the books to be sent to the Divinity School, it appeared how closely bound up it was with theology, antiquities, philology, and the early history of the Christian church. The same is true of any subject; though it is, of course, more evident in the fields of literature, history, philosophy, and economics than it is in scientific fields; and it is in scientific subjects, and in consequence of the needs of laboratory workers, that other exceptions, if any, will have to be made. In the case of the department libraries, therefore, it seems to be impracticable to make complete collections in the subject concerned in either one place or the other; but the disadvantages of separation can be diminished by keeping a record in the central library of what the department library has, by transferring to the department everything in certain restricted technical lines, by encouraging it to transfer to the central library whatever it may receive by gift or exchange that is of a more general nature than the specialty that it naturally cultivates, and by providing in the general library as ample conveniences as possible for study, so that the books can be readily used in connection with those in other related fields. If, in addition to this, the books in the department library are classified on the shelves in the same way in which the books in the central library are classified, their use will be still further facilitated.

There remains to be considered the relation of the various laboratory and class-room libraries to the main library. The seven laboratory libraries (see p. 211) are evidence of the fact that the laboratory worker feels the necessity of having his principal working books

close at hand, but their growth has been further fostered with us, because the scientific books in the College Library have not been classified in such a way as to make their use easy; so that the instructors, not having been served as they should have been here, have felt the greater need of books in their own laboratories. Such collections should, in my opinion, be restricted in size, the less used and the out-of-date books being weeded out from time to time and sent to the College Library, while other books, if of a distinctly technical character and not likely to be wanted by other students, can be taken from the College Library and deposited in the laboratory for as long a time as they are needed. Books much used, however, unless simply laboratory manuals, should undoubtedly be provided in duplicate and be accessible in both collections.

The formation and growth of the class-room libraries (now sixteen in number) has also been encouraged by the inability of the College Library to furnish needed books in sufficient numbers, and room enough in which to use them. In large part they duplicate the "reserved book" collections in Gore Hall, or make unnecessary the reservation of books there, and thus form a very valuable addition to our resources. They also relieve the pressure on the seating capacity of Gore Hall which, though much enlarged by the changes made three years ago, would soon be inadequate were it not for the large numbers that use the class-room libraries by preference. The class-room libraries thus perform a valuable service and one that we shall not wish to dispense with; for it has never been the policy of the Library to provide any considerable number of duplicates from its book-funds, and any further enlargement of the central reading-room would probably be undesirable, the room having apparently reached, or nearly reached, the limit beyond which the unavoidable constant noise from a large number of persons becomes troublesome.

We shall, therefore, I hope, always continue to have a number of these subsidiary libraries; but the need of better accommodation for them is pressing. Scattered as they are in many separate rooms (see p. 211), it is impossible to exercise proper supervision over them, though a member of the Library staff, Mr. W. D. Goddard, visits some of them daily, and others two or three times a week, for the purpose of keeping them in order, and of reporting missing books to the officer of instruction immediately responsible. Four of them have been brought together into the reading-room in Harvard Hall, and are thus under good care, and are the most used, an attendant being present constantly during the hours that the room is open. Some similar provision ought to be made for the Child Memorial

Library of English, and some, or all of the other libraries of modern literature might for a time be shelved in the same room with it. The Child Library already has a valuable collection of books, and it will increase rapidly. The Romance library will also deserve more careful supervision, when it obtains the collection of Romance books from Mr. James Russell Lowell's private library, many of which are enriched by autographs or notes.

It must be admitted that a small special collection installed in a room by itself, and accessible only to the students of a single department, who hold keys to the room, gives to those who use it something of the pleasure of a private library; and it is creditable that the number of books lost during the last year was so small (about fifteen, not including those that disappeared for a time and afterward reappeared). But it is none the less true that the present arrangement should only be regarded as a temporary one, and that better accommodations ought already to be under consideration.

In the plans for enlargement which were approved in 1893, the new octagonal reading-room seating 350 was surrounded by smaller rooms opening out of it, which were designed for these class-room libraries, for study-rooms for the professors, and for small courses that require the use of many books. But I am inclined to think that on the whole a more satisfactory place for these rooms would be in a new section of the present building to be added, either at the east end of the east stack, or at the south end of the west stack. In either of these positions they would be somewhat more conveniently placed with respect to the books than if disposed about a central reading-room. An additional reason in favor of this plan is that it allows these rooms to be built at once and independently of the new large reading-room which will be necessary a few years hence. For the immediate present, and until more space for book storage is needed (perhaps six or seven years), the Gore Hall reading-room will serve; but of smaller rooms for study and research and for the departmental collections which we have called class-room libraries the need is already urgent. We have perhaps the richest collection of books in this country, we have a great part of them admirably classified, and before long the same can be said of the whole; but, except for a number of tables in the east stack so small that not more than two or three books can be used on them at once, and so placed that the library attendants are continually brushing by them, and a few large tables insufficiently lighted in the west stack, we have no place for private study, no place at all where a scholar can have a number of books brought together for his own use for a

few days or weeks, or where he can keep his own papers and materials while working. An enlargement of the building would also, it is to be hoped, provide some extra room for the staff which is in certain respects hard pressed; and I should be glad if a small room could be contrived for a stenographer and type-writer whose services might be available a part of each day to professors and others who might have occasion for them. All of these, but especially the provision of departmental reading-rooms and study-rooms, are urgent needs, and I hope some way of meeting them may speedily be found.

In the course of the summer a rotary ventilating fan was installed in the attic space above the former Art Room (now the American history reading-room). This is intended to pump a strong current of warmed air into the top of the reading-room and of the delivery-room, and in summer, by a reversal of the fan, to draw out from the top of the reading-room the heated air, for which there has heretofore been no means of exit, and which has made the room almost unavailable in hot weather. The apparatus has only just been put into operation; but it promises to be successful in greatly improving the air in the two rooms which it supplies, and the fan proves to be practically noiseless in its action.

But one Bibliographical Contribution, No. 53 of the series, has been issued during the past year, "A List of Portraits in the various buildings of Harvard University," prepared under Mr. Winsor's direction by William Garrott Brown, the Deputy Keeper of the University Records.

The accessions to the University Library for the year, and the present extent of the various departments, are shown in the table on the next page.

The accessions to the Gore Hall collection include 1,160 volumes of bound serials (received in parts), 976 volumes made by binding pamphlets singly, and 16 volumes made up of many pamphlets bound together.

To this total of 506,396 volumes should be added the 18,327 volumes of the laboratory and class-room libraries (see below), giving a grand total of 524,723 volumes for the University Library. This number however is to be regarded as an approximation only, being the result of an estimate made in 1878 on the basis of an actual count in 1873, increased from year to year by the number of volumes added. But while the count of volumes received is doubtless accurate, less careful attention has been given to the number of those sold, worn out, exchanged, or transferred to other departments, so that, although the estimate made in 1878 was thought to be under the actual size of the library, the present figures may be somewhat

ACCESSIONS.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library)	11,219	365,793	364,277
Law School	3,468	44,340	5,241
Lawrence Scientific School	133	5,100	. .
Divinity School	1,214	28,710	16,254
Medical School	35	2,204	. .
Museum of Zoölogy	641	31,959	1,600
Astronomical Observatory	400	9,035	12,787
Botanic Garden (Herbarium)	71	7,347	4,984
Bussey Institution	40	3,690	200
Peabody Museum	110	1,948	2,583
Arnold Arboretum	368	6,110	6,000
Dental School	40	160	. .
Total	17,739		
Deduct, transfers from Gore Hall to Divinity School and Law School	1,033		
Total	16,706	506,396	413,926

in excess. An actual count cannot conveniently be made until the rearrangement of the Library is completed, when shelf-lists giving an accurate view of the extent of each department of the Library will have been made.

The additions to the College Library include 177 volumes in which are preserved the letters received by Charles Sumner from 1830 to 1874; also newspaper clippings and his commonplace-book. These were given to the Library by the sons of Mr. Edward L. Pierce, Sumner's literary executor.

Mr. Charles C. Beaman of New York, a member of the Board of Overseers, has given a typewritten copy of an "Index to some of the periodical literature relating to Harvard University contained in the library of the University Club of the City of New York." This index was prepared by Mr. T. Frank Brownell, the secretary of the Class of 1865, and though it is limited in its field to the periodicals owned by the University Club, of which some of the sets indexed are unfortunately incomplete, it nevertheless provides a key to a surprising amount and variety of information. The entries, about 21,000 in number, are divided under more than a hundred well chosen heads, and are arranged in the main chronologically under each head. Mr. Brownell deserves the thanks not only of the New York University Club, but of all Harvard graduates for this labor of love. It

would be desirable to make provision for the completion of the Index, and for its extension from 1893 to date. The less complete record which the Library printed for some years was not continued after 1892.

Another interesting gift is that of an Italian manuscript, dated 1353, of the "*Liber de casu Trojæ*" of Guido delle Colonne, from Miss Kate O. Peterson of Brooklyn, N. Y., who received the degree of A.M. from Radcliffe College in 1895, and constantly used this Library during her residence in Cambridge. Mr. Theodore W. Koch, of the Class of 1893, now engaged in cataloguing the Dante collection of Cornell University, has presented to our Dante collection many of the Cornell duplicates, while the Dante Society has put another hundred dollars in our hands from which to still further increase our Dante collection. Dr. A. C. Coolidge has continued to make large additions to our Slavic collection at his own expense.

It is impossible to name all the individuals, societies, and government departments which have favored the Library, but I must not omit to mention Senators Hoar and Lodge of Massachusetts, Sir John Bourinot, K.C.M.G., the Clerk of the Canadian House of Commons, Hon. Samuel A. Green of the Massachusetts Historical Society, and Rev. Edward Abbott of Cambridge, for their constant gifts of books, documents, and pamphlets.

The Herbarium Library has received from Mrs. Asa Gray a large collection of autographs of botanists mounted in volumes. The Library of the Museum of Comparative Zoölogy received 100 volumes from the library of the late Theodore Lyman.

The total gifts to the College Library during the year 1897-98 and five previous years have been as follows:—

GIFTS TO COLLEGE LIBRARY.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Volumes	4,118	6,026	4,351	3,903	5,048	2,646
Pamphlets	13,770	16,598	7,522	8,908	8,427	11,365
Totals	17,888	22,624	11,873	12,811	13,475	14,011

The accessions by gift and purchase to the University Library as a whole (excluding the laboratory and class-room libraries) have been as follows during the last eighteen years:—

Volumes.	Volumes.	Volumes.
1880-81 . . . 9,804	1886-87 . . . 11,924	1892-93 . . . 22,370
1881-82 . . . 9,129	1887-88 . . . 16,468	1893-94 . . . 15,788
1882-83 . . . 9,818	1888-89 . . . 12,253	1894-95 . . . 15,325
1883-84 . . . 12,360	1889-90 . . . 16,051	1895-96 . . . 17,317
1884-85 . . . 14,558	1890-91 . . . 13,276	1896-97 . . . 15,474
1885-86 . . . 9,191	1891-92 . . . 13,785	1897-98 . . . 16,706

The present extent of the laboratory and class-room libraries is as follows :—

LABORATORY AND CLASS-ROOM LIBRARIES.	Perma- nent.	On Deposit.	Totals.
1. Chemical Lab. <i>Boylston Hall</i>	568	979	1,547
2. Physical Lab. <i>Jefferson Phys. Lab.</i>	14	360	374
3. Botanical Lab. <i>University Museum</i>	505	124	629
4. Geological Lab. <i>Do.</i>	252	..	252
5. Mineralogical Lab. <i>Do.</i>	510	221	731
6. Phys. Geography Lab. <i>Do.</i>	329	156	485
7. Zoölogical Lab. <i>Do.</i>	259	..	259
8. Classics. <i>Harvard Hall 3</i>	3,247	143	3,390
9. History. <i>Harvard Hall R. R.</i>	1,378	34	1,412
10. United States History. <i>Harvard Hall R. R.</i> . .	804	8	812
11. Political Economy. <i>Do.</i> . .	912	1	913
12. Social Questions. <i>Do.</i> . .	822	..	822
13. Child Memorial. <i>Sever 2 and 4</i>	2,277	41	2,318
14. Romance Languages. <i>Do.</i>	501	2	503
15. German. <i>Do.</i>	463	..	463
16. French. <i>Sever 21</i>	2,235	..	2,235
17. Sanskrit. <i>Sever 15</i>	477	..	477
18. Semitic. <i>Sever 7</i>	828	..	828
19. Mathematics. <i>Sever 22</i>	320	72	392
20. Music. <i>Dane Hall</i>	155	..	155
21. Philosophy (Psychol. Lab.). <i>Dane Hall</i> . . .	394	37	431
22. Fine Arts (incl. Gray and Randall Coll.). <i>Fogg Museum</i>	776	..	776
23. Architecture. <i>Archit. Department Bldg.</i> . . .	207	..	207
24. Preachers' Library. <i>Wadsworth House</i> . . .	94	..	94
Totals	18,327	2,178	20,505

The Chemical Laboratory has on deposit a large number of periodicals and an extensive series of chemical dissertations received from the German universities. The Physical Laboratory has on deposit the complete set of Poggendorf's *Annalen*. The gift of a duplicate set would be very welcome; so that this set might come back to the College Library where it is not infrequently wanted by chemical students and others.

The Classical Library occupies two rooms (one a seminary room) in Harvard Hall. Admission is by key only. In the course of the year the Classical Department bought all the books relating to Homer and Hesiod from the late Professor F. D. Allen's library, and have made of them a memorial collection in the seminary room.

The four libraries of History, United States History, Political Economy and Social Questions (in all nearly 4,000 volumes), together occupy a large room in Harvard Hall seating seventy persons. This room is open from 8.30 A.M. to 5 P.M. and is in charge of an attendant. At the close of the day books may be taken out for overnight use.

The Child Memorial Library is the only one of the class-room libraries that has a permanent fund of its own. The others have been built up by gifts or subscriptions, or by appropriations from the Corporation or from the departments interested.

The libraries in Sever and Dane Hall being scattered in so many rooms are necessarily under no constant supervision and the rules in regard to their use vary in some respects, but they are accessible only to persons having keys to the rooms.

The Fine Arts collection has recently been enriched by the books belonging to the Gray collection (402 volumes) and the Randall collection (229 volumes).

USE OF BOOKS IN THE COLLEGE LIBRARY.

The following table shows the use of books at Gore Hall in 1897-98 as compared with previous years : —

USE OF BOOKS.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
1. Books lent (excluding overnight use)	50,965	55,898	57,241	60,346	59,781	59,611	61,272
2. Used in the building (Recorded use only.)	19,648	23,671	22,442	23,500	22,230	22,965	27,017
3. Overnight use of reserved books . . .	20,469	24,482	25,377	20,985	8,594		
Totals	91,082	104,051	105,060	104,831	90,605	82,576	88,289
4. Overnight use of Harvard Hall Reading-room . . . . .	. . .	. . .	. . .	. . .	. . .	9,288	11,938

The decline in the total recorded use from 1894-95 to 1896-97 was caused by the discontinuance of lending reserved books for overnight use, consequent on the opening of the reading-room in the evening. The ordinary borrowing from Gore Hall and the

recorded use of books in the building, it will be noticed, was greater during the past year than ever before.

Of the constant use of the reserved books in the reading-room, and of the collections of reference books, periodicals and United States documents freely accessible to all, no record is possible. The extent of these open collections and their growth is shown in the following table:—

OPEN COLLECTIONS.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Bound Periodicals	3,340	3,444	3,525	3,619	3,813
Reference Books	2,704	2,696	3,896	3,822	3,853
Reserved Books	7,427	6,847	7,677	8,090	8,117
U. S. Documents	3,088	3,240	3,370	3,465	3,592
Total	16,559	16,227	18,468	18,996	19,375

To these should be added the books in the Harvard Hall reading-room (3,959) and those in the other class-room and laboratory libraries (16,546), making altogether, at present, about 40,000 volumes which are directly accessible in an informal manner to the members of the University.

In addition to this, cards of admission to different departments of the Library are given, on recommendation of an instructor, to all advanced students who need to go directly to the shelves for purposes of investigation in connection with their work. Such students have the same facilities for the examination and study of all the resources of the Library, in their chosen departments, that the officers of instruction enjoy. The use of these cards of admission to the book-stack is shown in the following table:—

ADMISSION TO THE BOOK-STACK.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
History	36	41	59	68	63	66	54	51
Science	8	9	28	27	9	4	11	33
Art (including Music)	15	13	4	8	5	11	18	34
Literature	38	45	62	63	58	63	64	90
Classics	18	22	26	45	44	41	41	52
Philosophy	12	16	5	17	12	6	4	11
Theology	8	9	12	3	3	1	1	3
Political Economy	9	14	9	15	15	12	4	9
Education . . . . .	..	..	..	3	..	1	5	2
Geography . . . . .	..	..	..	..	..	..	8	14
Total students	144	169	205	249	209	205	210	299
Times of use	2,512	3,629	4,560	5,974	4,352	4,601	4,381	5,750

Only once before (in 1886-87) has an almost equally large number been given. For several years after 1886-87 the privilege was somewhat restricted, as it was thought to have been unnecessarily enlarged. But as new departments of the Library are brought into order, an increased demand for opportunities of examining the books at the shelves is natural and is justified. That the progress of the reclassification of the Library is to a large extent the cause of this increased demand is shown by the fact that the largest recent increase is in departments of study in which the most progress has recently been made, — science, art, literature, and philosophy.

The number of students who take books from the Library, and their relation to the whole number connected with the Cambridge departments of the University, is shown for the last four years and at previous ten year intervals in the following table: —

STUDENTS OF	1874-75.		1884-85.		1894-95.		1895-96.		1896-97.		1897-98.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	20	16	26	26	50	40	41	37	37	36	40	36
Law	139	63	153	122	404	176	465	186	475	217	548	241
Scientific .	29	21	28	21	308	144	340	128	368	162	410	186
Resident Grad.	55	18	70	52	242	204	285	213	279	224	287	241
Senior Class .	152	109	191	170	327	318	366	334	328	290	342	322
Junior Class .	159	96	234	216	348	335	338	325	377	311	387	333
Sophom. Class	208	124	256	220	425	323	445	303	473	268	450	305
Freshm. Class	197	108	255	205	399	236	462	280	416	263	471	264
Sp. Students .	. .	. .	. .	. .	168	127	160	122	160	120	169	127
Total . . .	959	555	1213	1032	2671	1903	2902	1928	2913	1891	3104	2055

The proportion of the undergraduates who borrowed from the Library expressed in percentage was shown in the last report by a table covering fourteen years. The figures showed a rather remarkable fluctuation, ranging from 88 to 99 per cent. for the Seniors, 82 to 99 per cent. for the Juniors, 56 to 94 per cent. for the Sophomores, 59 to 80 per cent. for the Freshmen. The highest general average was in 1887-88, while the lowest percent. for each of the three upper classes was in the year 1896-97. In 1897-98 the general average rose again, but the Freshman record sank to its lowest point in fifteen years, 56 per cent. As has been remarked, however, in these reports before, the decline which began about

1888 is simply a decline in the *recorded* use of the Library; it has been contemporary with the development of the class-room libraries, and the marked decrease of 1896-97 from the previous year was evidently connected with the opening of the reading-room in the evening, which stopped the issue of reserved books for overnight use. That the actual use of books in the reading-room and in the class-room libraries has largely increased during these years is evident from observation; but it is a little remarkable that this use should have satisfied the desire of so large a proportion (nearly 26 per cent.) of the undergraduates, so that 468 of the 1,819 students enrolled in the College did not find occasion to borrow any books from the Library. Of these 468, 20 were Seniors, 54 were Juniors, 145 were Sophomores, 207 were Freshmen, and 42 were Special Students.

That but a small proportion of the Law students should be registered here is not remarkable, as their professional needs are fully supplied by their own Law Library, and the College Library does not profess to be well equipped with the literature of relaxation. The students of the Scientific School also find most of the books which they require for study in the reading-room of the Scientific School, in the laboratory libraries, and among the reserved books in Gore Hall, and their attention is naturally directed more to laboratory work than to literary investigation. Nevertheless, the familiarity with a large library well equipped in all departments of human learning is one of the broadening and inspiring influences open to all members of the University resident in Cambridge, and it would be a satisfaction to see professional students as well as others avail themselves of it in the highest degree.

The students of Radcliffe College are given the use of the Library so far as this can be done without prejudice to the interest of the students of Harvard. To give them equal privileges would be manifestly impracticable; but I hope it may sometime be possible to give them somewhat more ample accommodation than at present. The table below shows that the number of books lent to Radcliffe has declined since the new reading-room was opened and the overnight lending of reserved books ceased.

BOOKS LENT TO RADCLIFFE.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Borrowers	82	111	132	108	156	155	167	146
Books borrowed . .	930	886	1,057	1,162	1,672	1,502	1,320	1,191

Books wanted by Radcliffe students are sent for by a messenger coming daily from Radcliffe College, and are charged to the Radcliffe Library, not to the individuals asking for them. Radcliffe's own library now numbers 12,500 volumes, and the Harvard Library has the pleasure, from time to time, of adding to it from its own duplicates.

During the past year the temporary use of the Library has been granted to 147 different persons who have come to Cambridge for the express purpose of study. Such scholars are always welcome; for among them comes, from time to time, the special student who finds material, elsewhere inaccessible, in the books which a great library is bound to gather and to preserve for just such individual investigators, though they may be practically useless to every one else.

So far as possible, also, we have complied with requests coming from persons or institutions at a distance, and, in the course of the year, have sent to 92 such applicants (including twenty-nine colleges) 430 volumes. The policy of the Harvard Library has always been liberal in this respect, and has created throughout the country a feeling of gratitude and loyalty to the Library, which I have had occasion to remark and to rejoice in more than once. So far as I am aware this practice has been maintained thus far without the occurrence of any accident, the Library having never suffered loss from it, and seldom any inconvenience.

The Sunday use of the Reading-room shows a slight decline from last year, though it is far in excess of the figures of any previous year:—

SUNDAY USE.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Sundays open . . .	37	37	37	37	36	24	35	35
Users	3,104	3,284	3,716	3,658	3,634	2,359	5,010	4,635
Average	83	88	100	99	100	98	143	132
Highest No.	132	119	135	136	131	140	227	297

SHELF DEPARTMENT.

The work of re-classification has been steadily continued throughout the year. 32,478 volumes have been permanently placed in the stack (7,444 added to classes previously arranged, and 25,034 newly classified), making 217,100 so placed out of the volumes constituting the Gore Hall collection.

The newly classified books are as follows:—

Chemistry	1,500 vols.	Philosophy	7,410 vols.
Engineering	900 “	Sociology	1,993 “
Mathematics	3,010 “	Italian	5,597 “
Astronomy	1,070 “	Spanish	2,563 “
Geology	991 “		
			<hr/> 25,034 “

Beside these, there are nearly arranged

General Periodicals	6,000 vols.	Portuguese	325 vols.
Scandinavian	2,000 “	Minor Romance	250 “
Dutch and Flemish	650 “		
			<hr/> 9,225 “

Mr. N. D. C. Hodges, who is responsible for the scientific groups, says:—

The classification of the scientific books has special interest, as it is one of the first attempts at a satisfactory arrangement with so many books to work over, some previous efforts having been schemes for the classification of knowledge rather than of books as they exist. In each department only the most general plan was laid down before the books were touched; for the details, the books were looked to for an assertion of their proper places. The greatest difficulties were met in mathematics, the new mathematics, if it may be so called, having produced an interlacing of the older branches, of which cognizance is not readily taken in a linear placing of books on the shelves of a library. In physics, chemistry, mathematics, and astronomy, there were placed near the beginning the earlier books, those which appeared before the birth of modern science in the works of Newton, Lavoisier, Descartes, and the fathers of astronomy, and which have mainly an historic interest,—not to refer to their occasional erratic character. The books in those sciences as we now know them, after division into the necessary classes, were placed, in the main, according to date of publication; the newer books in each group being thus separated from the older and made more available for the reader visiting the shelves. Considering that there are librarians who would relegate to the cellar scientific books more than ten years old, we may expect that a date arrangement for science will become more and more popular. So far as the classification of the books in natural history has progressed, the historical development of the literature has had its influence, though systematic monographs have required different treatment;

then, again, there are fewer epoch-making books to rank with those in the physical sciences.

Mr. Carney, besides having the general oversight of the current entry of new books on the shelf lists, has been specially occupied with the re-classification of the philosophy and sociology, in which he has been guided by the constant advice and interest of the members of the departments. To Dr. Benjamin Rand we are under special obligations in this respect. In regard to certain details of the classification Mr. Carney reports :—

The literature of Greek and Roman Philosophy was not included in the Philosophical collection, these books having already been placed in the Classical collection, where it was decided to leave them. The scheme of classification is so planned, however, that duplicates not needed by the Classical Department can be placed here. From the Oriental Philosophy all texts were excluded, only histories being placed here. The books on Aesthetics were also left out, as they had already been placed in the Fine Arts collection; but Natural Religion was included under Philosophy, instead of being left for Religion. To illustrate the medical side of Psychology, the Medical collection of the Library was freely drawn upon, the use of medical works in this Library by professional students being small. The Medical School being in Boston, the medical students use the Boston libraries for the books they need.

The Sociology so far arranged includes only general works and those topics known collectively as the social questions; viz. Socialism, Communism, Laboring Classes, Charity, Pauperism, Crime, Temperance, Woman, Marriage. The related departments (Economics, Political Science, Education, etc.) will immediately follow under a separate notation. A rough scheme for Economics is already in the hands of the Economic Department for consideration.

Mr. C. W. Ayer reports that the arrangement of the books on Italian history and literature and on Spanish history and literature has been completed, and that the arrangement of the Scandinavian collection is well advanced. Special attention was given to the preparation of alphabetical lists of authors by centuries, difficulties with regard to the form of proper names, especially of Spanish authors, being referred chiefly to Professor A. R. Marsh. This work is designed to aid not only the shelf department, but also the cataloguing department in the definite and accurate assignment of each author to his place.

The arrangement of the other collections of the Romance group, Portuguese, Provençal, Catalan, Rhaeto-Romanic, and Roumanian,

is well under way, but its completion has been postponed until after that of the Scandinavian collection, the Scandinavian books being in immediate demand on account of new courses offered by Mr. W. H. Schofield and Dr. A. C. Coolidge. From Mr. Schofield in particular invaluable aid has been received in the arrangement of the Scandinavian collection, especially in the classification of the old Norse sagas.

The Dutch and Flemish collections have been placed between the Romance group and the Scandinavian collection, and their rearrangement in one group will be next in order after those now in progress.

Space for further work in the west stack has been gained by picking out and removing to the first floor of the east stack the sets of general periodicals, both English and foreign. No space now remains in the east stack for any new classes, such as Oriental history and literature, which would naturally find its place here by the side of the history and literature of other countries. In the west stack we shall have room for the re-classification of the natural sciences, for economics and education; but it is doubtful if we can go on with theology and church history, the only large groups, beside the Asiatic and African collections (history, description, and literature), which will then remain unclassified.

Mr. W. D. Goddard, who gives about half his time to the care of the class-room libraries, and half, under Mr. Carney's direction, to the care of the shelves in the College Library, reports that the annual examination of the shelves was begun the latter part of October, 1897, and carried on continuously during afternoons throughout the year. The time allotted was sufficient to go through the whole library twice, thus insuring better order of books on the shelves. The number of misplacements corrected in each examination was about 100, comparing not unfavorably with the record of last year. The number of missing books is 60; 25 volumes having been lost from the Reading-room, and 35 from the stack. 33 volumes reported missing in other years have come to light during the past year.

The following table shows the losses in volumes for sixteen years. These figures relate only to that portion of the Library which has been classified and to books received since 1877. For the earlier acquisitions (those before 1877) not yet re-classified, we have not the means for a satisfactory examination:—

VOLUMES LOST.	Reported lost.	Later found.	Now missing, 1898.		
			Reserved.	Stack.	Total.
1883	78	37	17	24	41
1884	51	41	3	7	10
1885	70	34	24	12	36
1886	48	26	8	14	22
1887	35	23	8	4	12
1888	49	30	12	7	19
1889	34	20	10	4	14
1890	93	61	21	11	32
1891	175	37	115	23	138
1892	65	22	24	19	43
1893	53	25	20	8	28
1894	165	53	106	6	112
1895	77	40	28	9	37
1896	94	18	59	17	76
1897	55	9	22	24	46
1898	60	..	25	35	60
Totals	1202	476	502	224	726

CATALOGUE DEPARTMENT.

The work of the Catalogue Department as compared with previous years is roughly shown by the following table : —

CATALOGUE WORK.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Titles catalogued					
for College Library . . .	7,753	8,350	7,564	8,990	9,974
for Departments, etc. . .	2,264	2,008	2,668	2,320	3,026
Total	10,017	10,358	10,232	11,310	13,000
Cards added to Catalogue . .	20,168	19,989	27,428	21,282	25,093

Miss M. Helen Pope, who joined the staff of the Library in 1875, but had partially withdrawn from active work in 1895 on account of illness, died on September 9, 1898. She was one of our best and most experienced cataloguers, and to her was generally intrusted the first training of new assistants, so that many of the past and present members of the Library staff (including the Librarian) remember her with gratitude and affection. Two other assistants have left, one tempted by better pay elsewhere; the other, it is expected, will return to us later. The extended report of Mr. Tillinghast, Assistant Librarian, covers many details of the work of the catalogue

staff. The points of more general interest noted by him are briefly mentioned here. The year ends with 4,865 titles on hand not recorded in the public catalogue, a slight reduction from the number on hand a year ago. Of these, 3,448 are recent gifts, and of the remaining 1,417 acquired by purchase, 1,156 have come to the Library since January 1, 1898. The latter are on the cataloguers' or classifiers' shelves awaiting immediate treatment, while most of the former, being of little present interest and in general of slight value, are placed in a division of the stack where they are arranged in order of the temporary numbers assigned to them when first received. They have bookplates and can therefore circulate if called for, and they can be found almost as surely and quickly as the books which are fully entered on the public catalogue, through the temporary slips that are written for them. During the summer, all the remaining Russian and some of the other Slavic books (about 550 titles) in the collection presented two years ago by Dr. Coolidge, were catalogued with the help of Mr. Leo Wiener. Work was also begun during the summer on the volumes of pamphlets, now almost 1,500 in number, which have been bound up during recent years and sent to the shelves uncatalogued. Two assistants were temporarily engaged especially for this work, and in six weeks disposed of 182 volumes, containing 1,871 pamphlets which needed to have some record made of them, 52 which were found to be already catalogued and several hundred others which were simply extracts from periodicals, circulars, etc., and were not thought to be worth cataloguing separately. In general, author entries alone were made for the individual pamphlets catalogued; and under subject headings, instead of entering the title of each pamphlet separately, references to the volume as a whole were inserted. It is desirable that this work should be pushed on as rapidly as possible since these bound volumes contain, beside thousands of uncatalogued pamphlets, many taken from the old pamphlet files which, though fully catalogued and formerly accessible in those files, are now found with difficulty in the bound volumes, the cards for them in the catalogue not having been marked to show their present location.

In January work was begun in coöperation with the Boston Public Library, the New York Public Library, the Columbia University Library and the John Crerar Library of Chicago in cataloguing the articles in about 185 serial publications including those of the chief learned societies and many periodicals devoted to history, geography, philology, economics and fine arts. The list was drawn up and agreed upon by representatives of the five libraries, and each of the five undertakes to catalogue about one-fifth of the material. The

titles are sent in by each library to the Publishing Section of the American Library Association, which superintends the printing of them on cards and distributes full sets of the printed cards to each of the five libraries, and to a number of other subscribers. A great mass of material (amounting probably to about 3,000 titles a year) is in this way made available at comparatively small expense. The price of the cards has been set in the first instance at \$3 per hundred titles (two cards for each title), and will probably be reduced. To the coöperating libraries an allowance is made of ten cents a title for each title catalogued by them, which just about covers the cost of the cataloguing. We take four copies of each card instead of two (extra sets being furnished at the mere cost of material and press-work); three of these we reserve for our own use, the fourth set we distribute to the department libraries, and at a small charge to any professor who wishes to receive the titles relating to his own specialty. For the present the cards prepared for our own catalogue have been kept by themselves, but arranged on the same system as those in the public author and subject catalogues; it is to be expected that later they will be transferred to the general catalogue.

Books have been catalogued during the year for thirty-two different department, laboratory and class-room libraries. The collections in the Botanical laboratory and the Mineralogical laboratory having never been systematically recorded, all the uncatalogued books (about 400 volumes) were brought over to the College Library in the summer and catalogued, so that now the record of these books is complete both in the central catalogue and in the laboratory.

Mr. Tufts reports for the Map Collection the receipt of 17 atlases, 7 roller maps and 582 sheets for the portfolios.

ORDERING DEPARTMENT AND FINANCIAL CONDITION.

The following table shows the income of our book-funds, receipts from other sources for the purchase of books, and expenditure for books during the last six years.

The table shows that while the income of our funds has diminished at the rate of a thousand dollars a year since 1895-96, our purchases have not been reduced, but have amounted to about the same sum in each of the last five years, except in 1895-96, when they exceeded the average by about \$2,000. The consequence is that the balance of more than \$4,000 of unexpended income which existed August 1, 1895, has been spent, leaving a balance of \$737 August 1, 1898; and the Treasurer's estimate of income for the year 1898-99 is

INCOME AND EXPENDITURE.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
From book Funds, —						
Balance from previous year	\$2,914	\$2,288	\$3,509	\$4,131	\$2,864	\$2,303
Income of the year	15,956	15,953	14,916	15,189	13,991	13,010
Total available	18,870	18,241	18,425	19,320	16,855	15,313
Spent for books	16,582	14,732	14,294	16,456	14,552	14,576
Balance to next year . . .	2,288	3,509	4,131	2,864	2,303	737
Special gifts, sales, etc. —						
Balance from previous year	1,096	1,114	1,184	1,396	1,205	1,176
Received during the year .	337	446	534	2,958	349	506
Total available	1,433	1,560	1,718	4,354	1,554	1,682
Spent for books	319	376	322	3,149	378	843
Balance to next year . . .	1,114	1,184	1,396	1,205	1,176	839
Total spent for books, —						
College Library	\$16,901	\$15,108	\$14,616	\$19,605	\$14,930	\$15,419
Department Libraries * . .	3,218	4,355	5,028	5,184	4,070	5,322
Total	\$20,119	\$19,463	\$19,644	\$24,789	\$19,000	\$20,741

only about \$12,000, or \$13,465 including the unexpended balances of former income and of special gifts. The estimated annual charges—for periodicals and binding, \$3,700, for incomplete works of which parts may be expected in the course of the year (known as “continuations”), \$3,600, for unfilled orders, \$2,800, and for freight, \$300—amount to \$10,400, leaving only \$1,600 of the year’s income free for new orders, a sum of course altogether inadequate to supply the needs of the Library.†

Although the action of the President and Fellows referred to in the note below, has increased the Library’s income to the point it had reached in 1892-93, yet in view of the constantly growing demands on the Library, as new fields of study are opened, and new courses of instruction established, it is evident that the Library

* Not including the Law School, which spends from \$3,600 to \$11,000 a year for books, but does not order through the College Library.

† On October 24, 1898, upon request of the Library Council for additional means for the purchase of books, the President and Fellows voted to establish the Henry L. Pierce fund of \$50,000, the income to be used for the purchase of books, and to appropriate for the purchase of books until further order the income of \$50,000 more from the residuary bequest of Henry L. Pierce. This welcome addition to the resources of the Library brings up our income to about the same amount that it had reached in 1892-93; that is, it just makes good the loss resulting from the general decline since that time in the rate of interest.

needs still larger additions to its book-funds to enable it to satisfy even the most pressing demands made upon it. The Library at present derives its income for books from 28 different funds, varying in amount from \$2,000 to \$60,000, and commemorating the names of as many different benefactors. The accounts of each fund are strictly and accurately kept. Each book bought is assigned to one or another fund, and bears ever after on its bookplate the name of the donor. Some of the book funds are unrestricted in their application, others are confined to purchases in a special field, as the Constantius Fund (the legacy of Professor Sophocles) for Greek, Latin, and Arabic, the Sales Fund for Spanish, the Sumner Fund for Politics and Fine Arts, and the Wolcott Fund for History, Political Economy and Sociology. The establishment of other funds would be very welcome, either restricted or unrestricted as to their use. Among the subjects not yet specifically provided for are American History, Ethnology, Folklore, Music, Sanskrit, Scandinavian, Slavic and Celtic literatures, all the modern literatures except Spanish, and all the departments of Science except Mathematics, Astronomy and Physics. A special fund for periodical publications, which are always a heavy burden on the income of a library, would be desirable; also a special fund for the purchase of rare and curious books, books interesting on account of their beauty, their early date, or some special circumstance connected with their production or ownership, but not of direct value for college instruction and therefore not properly chargeable to the general library funds.

The work of the Ordering Department, in charge of Mr. Potter, is summed up in the following table:—

WORK OF ORDERING DEPARTMENT.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
New orders, —					
Total received and examined . . .	3,573	7,820	5,744	4,152	6,687
Already owned or ordered	745	2,213	1,363	964	1,383
Forwarded	2,192	5,609	3,798	3,016	3,746
Estimate of cost, —					
For the College Library	\$3,983	\$12,445	\$9,223	\$5,970	\$6,765
For Departments	2,934	3,240	4,556	3,245	3,306
Total estimated cost	6,902	15,685	13,779	9,215	10,071
Shipments received from abroad . .	29	27	28	22	31
*No. of vols. bought for College Lib. .	2,932	5,203	5,854	3,531	4,335
†Total gifts examined and passed on .	22,624	11,873	12,811	13,475	14,011

* Excluding volumes formed by binding periodicals and pamphlets.

† Including both volumes and pamphlets. See p. 210.

The estimated amount of our orders was distributed among the agents in different countries in about the same proportions as in other recent years, except that the purchases at the Deane Sale in March 1898 raised the proportion of American purchases. A table showing the distribution for a number of years was printed in the last report. There is a good deal of fluctuation from year to year, but the figures for the last seven years taken together show that during that time about 24 per cent. of our orders have gone to American agents, 26 per cent. to England, 13 per cent. to France, 30 per cent. to Germany, 5 per cent. to Italy, 1 per cent. to Denmark (Scandinavian books), and almost 1 per cent. to Spain. It should be remembered, however, that many orders for Scandinavian and Slavic books have been sent to Germany, and many Spanish books and books in other languages have been bought in London.

The Harvard Coöperative Society sends in regularly on approval a large number of the new books published. These books remain on the counter in the Collating Room for a week or more and are open to the inspection of all the officers of the College. The attention of those who are charged with the responsibility of selecting books for the Library is especially called to this opportunity of examining most of the new English and American books.

That the work of the ordering department is well organized is shown by the fact that from the 3,746 orders sent out only twenty-seven unintentional duplicates resulted. The total cost of these was \$59.60, which was a little over one quarter of one per cent. of the total expenditure. Of the whole number, only seven were due to carelessness or errors in looking up the orders in the first place, three to errors in the catalogue, ten to inaccurate order slips or imperfect entries in second-hand catalogues, and the rest to various other unavoidable causes. When the difficult character of the orders sent from a scholars' library is considered, this may be regarded as a very creditable result. Four of the duplicates were disposed of at cost (\$20.87), one was exchanged for its full value (\$2), five were utilized in some part of the Library, and the rest were put with our other accumulated duplicates for sale or exchange later.

Mr. W. G. Brown, the Deputy Keeper of the University Records, reports as follows in regard to the two collections under his care, the University Archives comprising records and papers of all departments of the University (555 volumes and 214 bundles) and the Harvard University Collection, which contains the publications of the University and a great variety of material, mostly printed, illustrating its history from every point of view, the whole now

amounting to 2,187 volumes, 290 pamphlets, and 381 boxes and bundles :—

“The Calendar of Harvard College Papers prepared several years ago under Mr. Winsor’s direction with explanatory notes and a careful index seems to be a good thing to print whenever it may be convenient to print anything about the archives. The Calendar covers the series of Harvard College papers from the beginning to the year 1805, and the Index makes it possible to find instantly any allusion to an individual in the papers. Many of the papers are interesting and not a few have historical value. The plan of the calendar is similar to that adopted by Mr. Douglas Brymner in his Calendar of the Canadian Archives.

“Last spring a circular was printed and distributed calling the attention of officers, students and other friends of the University to the ‘Harvard University Collection’ and asking their coöperation in keeping it supplied with everything that should be preserved in it, including, beside historical and descriptive matter of all kinds, the publications of officers, reports and catalogues of Harvard Clubs, reports, photographs, and other memoranda of College Classes, printed and manuscript matter relating to college societies, complete sets of student publications, biographical items in regard to the benefactors of the University, and photographs of the College buildings and of persons and places in Cambridge. It is important that the collection should be systematically maintained and regularly cared for, but the time and attention required increases from year to year, and in consequence of the demand this makes upon his time, the ability of the Deputy Keeper to discharge the duties thrown upon him as a sort of official repository of information about University history is seriously hampered. The list of University portraits and much correspondence are visible evidence of the work of this kind he has had to do, but most of it is done in obedience to requests from various officers of the University who now regularly come to him for information, and whose queries frequently take hours of research to answer. Relief from some of the routine work on this collection would enable him to do a good many things for which he does not now find time; e. g., to index the Faculty Records and other series in the Archives, to make a card catalogue of the Harvard University Collection, and to put into print in one form or another some of the information he has acquired about his two collections and about the University’s history.”

On November 6, 1897, the Staff of the Library met and adopted the following minute which deserves to be here recorded as an admirable

statement of the place Mr. Winsor held in the estimation of those who worked under him and as a characteristic expression of the feeling towards library work inspired by his influence : —

“The members of the staff of Harvard College Library desire to put on record some expression of their sorrow at the death of Justin Winsor, for twenty years Librarian of the University, and of the honor in which they hold his memory.

“The university community has lost in him a tireless helper; historical students everywhere have lost a guide; but to us who were privileged to serve under him the loss is immediate and personal. Our debt to him is twofold. Each of us has profited by the daily contact with a masterful personality, by the stimulus of a high-purposed leadership, by the example of a marvelous industry. This is the debt we owe as individuals.

“As men and women engaged in a common work we owe another debt — a debt that is shared by all workers in libraries. To the administration of libraries he brought abilities of such an order as had rarely if ever before been so devoted, and he proved that such abilities are not wasted but on the contrary are demanded in the care of books. Whoever, therefore, shall devote himself to the care of books must find his work dignified, his place in the community elevated because of the life-work of Justin Winsor.

“To this simple acknowledgment of our debt to the librarian we would only add our testimony that the man was equally worthy of esteem and honor; and that he was in all things a good and faithful servant of Harvard University.”

In closing this my first annual report I wish to bear witness to the fidelity and discretion with which the Library was administered during the interval between Mr. Winsor's death and the time when I took charge (April 4, 1898), and to express my gratitude for the hearty welcome and unfailing coöperation and support that I have received from the whole staff and from the officers of the University.

WILLIAM COOLIDGE LANE,
Librarian.

THE GRAY HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The specimens of dried plants received by the Gray Herbarium during the year 1897–98 have numbered 14,022. The more important acquisitions by gift or exchange were as follows: From George Vanderbilt, Esq., through Mr. C. D. Beadle, curator of the Biltmore Herbarium, 1,711 plants of the Southern States, including many duplicates from the Chapman Herbarium; from Mr. F. V. Coville and Dr. J. N. Rose of the U. S. National Museum, 876 plants, chiefly from Mexico and the State of Washington; from Mr. W. M. Canby, 221 plants of northwestern North America; from Mr. W. T. Thiselton Dyer of the Royal Gardens at Kew, 311 plants of Borneo, collected by G. Haviland; from the Middlesex Institute, through Messrs. L. L. Dame and F. S. Collins, 699 plants; from Judge J. R. Churchill, 162 plants of Jamaica; from Professors W. J. Beal and C. F. Wheeler, 326 plants of Michigan; from Professor Franz Buchenau, 185 plants, chiefly of rarer European species; from Professor L. H. Pammel, 690 plants of Iowa, Nebraska, and Wyoming; from Mr. W. P. Rich, 100 plants of New England and 148 plants of Ohio and Indiana; from the New England Botanical Club, 167 miscellaneous duplicates; from Professor C. Conzatti and V. Gonzales, 497 plants of Southern Mexico, including many noteworthy and some new species; from Professor P. MacOwan, 71 rare plants of S. Africa, including the *Welwitschia mirabilis*; from Professor J. W. Blankinship, 143 plants of Missouri and Montana; from Professor M. E. Jones, 205 plants of the Great Basin, including many specimens of the difficult genus *Astragalus*; from the Boissier Herbarium, through M. Eug. Autran, 288 plants from Madeira, Costa Rica, and the Liu-Kiu Ids.; from Mr. David Prain of the Royal Botanic Gardens at Sibpur, a notable set of 354 orchids of Sikkim, critically identified during the preparation of a compendious monograph by Sir George King and R. Pantling. The chief acquisitions by purchase have been: 252 plants of Lower California collected by Mr. A. W. Anthony; two centuries of Florida plants collected by Mr. A. H. Curtiss; 459 plants of Indian Territory, Oklahoma, and California, collected by Mr. J. W. Blankinship; and 167 plants of Kansas, collected by Professor A. S. Hitchcock and assistants.

During the year 17,194 duplicate specimens have been sent out as exchanges or by sale to 48 other herbaria and correspondents.

All members of the herbarium staff have spent more or less time in field work. Mr. C. G. Pringle has completed his thirteenth season of collecting in the uplands of Mexico, his expert knowledge of the flora enabling him, as on former expeditions, to secure a large number of new and noteworthy plants. Mr. M. L. Fernald has continued his botanical exploration of Maine, again securing many plants new to the region and some new to science. Miss M. A. Day has collected 2,755 plants in Southern Vermont to be used largely in foreign exchanges.

During the year 10,308 sheets of mounted plants have been added to the organized portion of the Gray Herbarium. The Library of the Herbarium has been increased by 71 volumes and 225 pamphlets. It has been also enriched by a gift of more than 1,100 autograph letters and manuscripts of famous botanists. This notable collection was begun by Dr. Asa Gray in 1838 and continued through his life. Its extent and value have been much augmented by the incorporation of similar collections from Mrs. Thomas P. James and Baron V. Cesati. The whole collection, thus formed, has been carefully arranged and admirably mounted under the direction of Mrs. Gray, who has now presented it in five large folios, with an appropriate case, to the Library of the Gray Herbarium. All the autographs are accompanied by historical data, and very many by photographs or portrait engravings of the authors.

The Curator has another part of the *Synoptical Flora of North America*, to include the large order of Leguminosae, already well under way; while further critical study upon the flora of Mexico has been continued through the year by Mr. J. M. Greenman.

Early in the year an earnest movement was initiated to place the Herbarium upon a more secure financial basis. To this end, a generous patron has offered the sum of \$20,000 as endowment for a memorial professorship to be called the *Asa Gray Professorship of Systematic Botany*, — a chair for research, to be united with the position of Curator of the Herbarium. To stimulate further gifts this offer is made conditional, and the amount is available only if, on or before Commencement Day, 1899, another sum of not less than \$30,000, to be known as the *Asa Gray Memorial Fund*, be secured, the income of which is to be used for salaries of assistants, purchase of specimens, and other expenses of the Herbarium. Of the latter sum, \$9,650 had been subscribed by June, 1898,* largely through

* As the formation of this fund is being continued and only a few of the subscriptions have as yet been paid in, it seems best to defer specific acknowledgements until the next report.

the generosity and influence of the Visiting Committee. Progress in this movement, temporarily interrupted by the financial uncertainties of war-time, has this autumn been renewed, and it is hoped that all friends of the Herbarium may realize the importance of securing this much needed addition to the present inadequate endowment of the establishment. The financial needs of the Gray Herbarium are now pressing, and unless they can be met by gifts for present use, as well as increased endowment, the long-continued scientific activity of the Herbarium must be considerably curtailed.

The publications of the Herbarium during the year have been :

A case of ecblastesis and axial proliferation in *Lepidium apetalum*; by B. L. Robinson, Bot. Gaz. xxiv, 209-212, t. 9.

Contributions from the Gray Herbarium, n. s., No. xii; by M. L. Fernald, Proc. Am. Acad. xxxiii, 57-94; including I. A systematic study of the United States and Mexican species of *Pectis*; II. Some rare and undescribed plants, collected by Dr. Edw. Palmer, at Acapulco, Mexico.

Antennaria plantaginea and *A. Parlinii*; by M. L. Fernald, Asa Gray Bull. v, 91-93, t. 2.

The publication of new binomials in works of composite authorship; by B. L. Robinson, Erythea, v, 127-128.

Notes on Florida plants; by M. L. Fernald, Bot. Gaz. xxiv, 433-436.

New species and extended ranges of North American *Caryophyllaceae*; by B. L. Robinson, Bot. Gaz. xxv, 165-171, t. 13.

Contributions from the Gray Herbarium, n. s., No. xiii; by B. L. Robinson, Proc. Am. Acad. xxxiii, 305-334; including I. Revision of the North American and Mexican species of *Mimosa*; II. Revision of the North American species of *Neptunia*.

Some new and other noteworthy plants of the Northwest; by J. M. Greenman, Bot. Gaz. xxv, 261-269.

Notes upon some Northwestern Castilleias of the parviflora group; by M. L. Fernald, Erythea, vi, 41-51.

The genus *Antennaria* in New England; by M. L. Fernald, Proc. Bost. Soc. Nat. Hist. xxviii, 237-249.

Contributions from the Gray Herbarium, n. s., No. xiv; by J. M. Greenman, Proc. Am. Acad. xxxiii, 455-489; including I. Revision of the Mexican and Central American species of *Galium* and *Relbunium*; II. Diagnoses of new and critical Mexican phanerogams.

Some reasons why the Rochester nomenclature cannot be regarded as a consistent or stable system; by B. L. Robinson, Bot. Gaz. xxv, 437-445.

A new *Apios* from Kentucky; by B. L. Robinson, l. c. 450-453.

Notes on the genus *Bartonia*; by B. L. Robinson, l. c. xxvi, 46-48.

B. L. ROBINSON, *Curator*.

THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — As Director of the Botanic Garden, I have the honor of presenting my report for the academic year 1897-98.

The Head-Gardener, Mr. Robert Cameron, reports the past season as having been favorable for nearly all classes of plants in the Garden. He states that the work of transplanting was carried on with few hindrances and with comparatively little loss. The summer was characterized by a heavy rainfall well distributed through the hot months, so that all the herbaceous plants were in an unusually vigorous condition.

At favorable times, during the year, a few important changes in the arrangement of our plants have been successfully made, with the purpose of illustrating to our students the newer systems of classification, particularly that of Professor Van Tieghem. The experiment proved so far successful, that we now plan extending the changes somewhat farther in certain new directions. The small size of the space at our command and the definite limitations imposed by the many large trees we have, render such experiments difficult, but they seem to be worth trying.

Collections of living plants illustrating special subjects have proved very satisfactory. Three plots have been somewhat more fully shown this year; namely, plants used in the arts, and the species alluded to by Shakspeare and Virgil. A fourth was added early in the spring, and it began to attract at once a good deal of interest. This new group was made up of selections from the varieties described by Parkinson, as having been employed for decorative purposes, early in the seventeenth century, and which doubtless were used in the too scanty decoration of our colonial homes in the days when Harvard College was founded. This plot will be still further enlarged by the introduction of a few more old-fashioned plants.

Our labels have been cared for by the efficient Nomenclator, Mr. M. L. Fernald, Assistant in the Herbarium. Under his careful supervision the errors in labelling have been reduced to a minimum, and nearly all parts of the system are in satisfactory condition.

The number of visitors, especially on Sundays, has been large. With the exception of a few undisciplined children, all of these visitors are welcome guests, but the small contingent of unruly children has made it necessary for us to keep on guard, at least one policeman in uniform besides the regular watchman. If this annoyance continues next year, very stringent measures will be taken to stop it.

There is an increased attendance at the Garden of the Public School children who are studying Botany. They are desirable visitors, and every effort is made to render the Garden useful to them. One of the subscribers to our Botanic Garden Fund, Mr. John Cummings of Woburn, has at times expressed himself so strongly in regard to the benefits accruing to the schools from this policy, that we felt justified in giving it a fair trial. We are now fully convinced that the policy is sound.

Our exchanges have been extensive and satisfactory. The relations with the Herbarium and the Arnold Arboretum are of a most pleasant nature. From both we are in receipt of many courtesies.

We have had a trying experience with our large water-lily pond. After the sewer on Raymond Street was completed, the level of the water in our pond began to fall, and the springs which supplied it with fresh water became ineffective. Next, the water in the pond, in spite of all that could be done, became unfit for our uses. Finally it was decided to fill up the entire pond, and prevent the stagnant water from becoming a nuisance. At large expense this filling has been completed, and we have lost what was formerly an attractive feature of the Garden.

Repairs on the old greenhouses in the Garden have of late been extensive and costly. In the spring it was plain that extraordinary repairs would again be required by the falling greenhouses in the rear of the first range. The question arose whether it would be better to patch up these old greenhouses, or replace them at once by cheap new structures, with the hope of saving loss incident to further makeshift repairs. While the subject was under consideration, a friend of the University, who had expressed himself as much interested in the botanical exhibit (especially the glass models of flowers) sent by Harvard to the Columbian Exposition at Chicago, entered into correspondence with the Director, with a view of making a considerable contribution to the resources of the botanical department. After long consultation it was decided that a new range of greenhouses to take the place of our oldest ones, would be the most acceptable form which the gift could take. The only conditions imposed by the

generous giver were these: the proposed greenhouses, erected in memory of his mother, should be "beautiful, useful, and permanent." From competitive sketches and estimates, a plan was selected which, by its judicious management of space and its ample proportions, secured large usefulness; the employment of steel and iron in all parts of the framework assured permanency; the requirement of beauty was certainly met by the choice by our anonymous friend of the most attractive of the plans.

It is believed that the new buildings represent one of the most interesting recent gifts to the University, both in their origin and completeness. The first section of the structure is used for plants of economic interest; the second for large tropical species; the third for plants having a wide morphological interest; the fourth for experimental physiology; and a fifth for seedlings and cuttings. Adjoining the experimental portion, there has been erected a convenient house for apparatus and the working library.

Out of the waste materials left on tearing down the dilapidated old greenhouses, our frugal Head-Gardener has built at small expense a greenhouse, 75 feet long, 16 feet wide, and 11 feet high in the clear. All of these houses are heated by the battery of boilers in the lower range, and although we have now many more square feet of glass than before, the demand on the coal supply is not much greater than before. The new houses do not waste the heat.

The good advantages offered for instruction in Botany at the Garden during the vacation were made use of by about twenty pupils from different remote parts of our country. Although this course makes a severe draft on the teachers who have been busy with College classes throughout the year, the zeal and enthusiasm of the summer students are so great that the burden is much lightened.

The Garden has continued to provide material for the botanical students at Radcliffe.

The Museum itself has been enriched during the year in many ways. Dr. Farlow has completed the cases, on the first floor, for an interesting display of Cryptogamia. The Ware collection continues to increase, and proves to be a feature attractive to the general public. The utility of the Ware collection in illustrating the principles of scientific classification has become much enhanced by the latest acquisitions from Mr. Blaschka's studio. Many of the gaps which existed previously in the series are now filling up, in such a way as to indicate with clearness the more important relationships.

For many years the Director has been engaged, both in the Garden and Museum, in bringing together material to illustrate the useful

products of plants, and the methods by which they can be improved. During the last ten years the material has increased so rapidly, both in amount and value, that it now seems proper to explain briefly the plans by which the collections can be utilized by the public and by special students of economic botany. Most of the various departments are now well represented: specimens illustrating food-plants and their products, the fibres, timbers, cabinet-woods, tans, oils, resins, rubbers, dyes, perfumes, and remedial agents, are abundant and are now adequately housed. The more important of these are accessible to people who may wish to identify novel plant-products, and all are available to special investigators.

The Director has long devoted himself to the preparation of an illustrated index to this material in the Museum, which, on its publication, may serve as a comprehensive dictionary of economic botany and an indication of its possibilities. Further material from certain districts, especially from the West India Islands, the Philippines, and from China, may be regarded as among the most pressing desiderata at the present time. Arrangements for the acquisition of desirable specimens from these countries either by gift, exchange, or purchase will be gladly entered into by correspondence.

The collections of fossil plants have received during the year, careful study at the hands of Dr. Robert T. Jackson. Cases and trays have been provided for a large part of the specimens, and they are now for the first time accessible to specialists, under convenient conditions. It is extremely desirable that the rest of the collection should be speedily arranged by Dr. Jackson, and made available to advanced students of palaeontology. Probably four years would suffice for this work, provided Dr. Jackson could continue to give to it as much of his spare time as he has been able to during the year just closing. It is pleasant to report that this collection, entrusted to our department by Dr. Alexander Agassiz, is on its way towards good service; but the Director would be glad to hasten the time when all of its treasures may be safely submitted to special students of palaeontology. For about two thousand dollars, the task of arranging could be well done.

The past year has been marked by generous gifts to the Garden and Museum, all of which are mentioned in the Report of the Treasurer. For his success in obtaining funds for the support of these parts of the Botanical establishment, the Director has been largely indebted, as in former years, to the interest and coöperation of the Overseers' Committee, and its wise chairman, Col. Henry Lee.

Without this generous interest, the task of the Director, as he has had occasion to say before, would have been hopeless: with it it has been an agreeable duty.

In recent years, the interests of the Botanic Garden and its associated Museum have become so diversified that the administration now involves a great deal of responsibility and anxious care. It therefore seems proper that this responsibility should be shared, if possible by a younger man. The Director has respectfully requested the Corporation to authorize the selection of an Assistant Director of the Botanic Garden. Should the request be granted, he would proceed to suggest the name of a recent graduate of the University who can bring to its service sound training in Botany and Horticulture and large experience in practical details connected with the administration of garden affairs.

GEORGE LINCOLN GOODALE, *Director*.

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR, —I have the honor to submit the following report on the progress and condition of the Arnold Arboretum during the year ending July 31st, 1898 :—

The usual popular courses in dendrology have been given during the year by Mr. J. G. Jack, and two special students have studied American trees in the Arboretum preparatory to entering one of the Forest Schools of Europe.

The addition made to the income of the Arboretum by the gift of the trustees of the Massachusetts Society for Promoting Agriculture has made it possible to improve and extend the permanent generic tree groups in which several vacancies have been filled during the year. Special attention, too, has been given to completing the type collection of shrubs and thinning the natural woods. All the living plants, both in the systematic groups and in the natural woods, are in a satisfactory condition and in most cases are growing rapidly. The Park Commissioners of the City of Boston under the provisions of their contract with the University have done a large amount of road-building on Peters' Hill which can be opened to the public before the end of the present year.

The interchange of plants and seeds with other botanical and horticultural establishments has been continued during the year. There have been 12,474 plants (including grafts and cuttings) and 1,102 packets of seeds distributed as follows : To the United States and Canada 10,175 plants and 490 packets of seeds ; to Great Britain 1,678 plants and 283 packets of seeds ; to the continent of Europe 621 plants and 196 packets of seeds ; to Japan 133 packets of seeds. There have been received during the year 2,404 plants (including grafts and cuttings) and 261 packets of seeds.

New cases, presented by Mr. H. H. Hunnewell, which nearly double the space available for the herbarium have been built during the year ; and 2,488 sheets of dried plants, largely from North America, have been added.

The library has received by gift 291 volumes and 159 pamphlets, including the illustrated edition of Blanco's *Flora de Filipinas* in six folio volumes, presented by Mr. Benjamin F. Stevens of Boston, and the two folio volumes of Humboldt & Bonpland's *Plantae Æquinoctiales* from Mr. Arthur T. Lyman of Boston.

During the year the eleventh volume of *The Silva of North America* has been published and the twelfth volume has been printed.

C. S. SARGENT, *Director*.

THE CHEMICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The courses of instruction offered were substantially the same as those of the previous year. The course in Quantitative Analysis (Chemistry 4) was given by Mr. G. P. Baxter, while Mr. J. P. Sylvester took charge of the course in Qualitative Analysis (Chemistry 3); in the previous year these gentlemen had given the laboratory instruction in these courses. Dr. H. E. Sawyer gave a course of lectures upon the Chemistry of Fermentation during the second half-year.

The number of students in the several laboratory courses during the year and in June, 1897, was as follows:—

	October, 1897.	January 1st, 1898.	June 1st, 1898.	June 1st, 1897.
Chemistry <i>B</i>	76	75	68	66
Chemistry 1	335	313	298	272
Chemistry 3	108	99	98	98
Chemistry 4	30	28	24	28
Chemistry 5	29	24	24	14
Chemistry 6	10	10	9	4
Chemistry 9	9	9	..	..
Chemistry 10 . . . . .	..	..	10	9
Chemistry 20 <i>a</i>	5	5	5	3
Chemistry 20 <i>b</i>	6	6	5	4
Chemistry 20 <i>c</i>	3	3	3	4
Chemistry 20 <i>d</i>	2	2	2	1
Special	5	4	4	7
Total	618	578	550	510

For several years it has been difficult to provide working places for the large number of students in General Descriptive Chemistry (Chemistry 1) and Qualitative Analysis (Chemistry 3); this year the number of applicants in these two courses was so great that it was impossible to supply all with desks. Some of the men who thus failed to obtain places in the laboratory immediately withdrew into courses in other subjects, but twelve of them preferred to allow their applications to remain on file, and took their places, one by one, as desks became vacant during the month of October; the work of these students suffered serious interruption, and many of them were

late in applying for desks through no fault of their own. In our other courses every applicant could be given a desk, but every place was then filled, and the need of better accommodations for our more advanced students is now as imperative as the necessity of providing for the increasing number of our elementary students. The alterations made in Boylston Hall during the past few years have greatly increased its capacity, but the limit of expansion, without extending the outer walls, seems to have been reached. In the last five years our numbers have exactly doubled; in June, 1893, 272 students were at work in our laboratories, in June, 1898, there were 550.

An unusual number of scientific investigations were carried on during the year. The following work was done under the direction of Professor Jackson: Mr. W. Koch made a careful study of the action of sodic ethylate upon tribromdinitrobenzol; he also prepared a solution of the long sought orthobenzoquinone by the action of iodine upon the lead salt of pyrocatechin, although he has not yet been able to isolate the body; Mr. R. W. Fuller prepared diparabrombenzylcyanamide directly from the silver salt of cyanamide; Mr. P. M. Wheeler studied the constitution of the α -paradibromdinitrobenzol, and Mr. G. W. Heimrod some derivatives of paraphenylendiamine; Mr. F. H. Gazzolo studied the action of sodic ethylate upon certain derivatives of mesitylen, and Mr. I. H. Derby prepared and analyzed anhydrous ferrous iodide.

Professor Richards made an extended study of the occlusion and unequal release of gases by oxides of metals formed from nitrates, and found that the excess of oxygen usually present in such material has a tendency to work its way out by a process of dissociation and recombination; he also made some experiments upon the cause of the sour taste of acids, and devised several forms of apparatus for generating gases. The following investigations were made under his direction: Mr. A. S. Cushman and Mr. G. P. Baxter continued the determination of the atomic weights of nickel and cobalt respectively upon which they had been engaged during the previous year; Mr. B. S. Merigold investigated the atomic weight of uranium; Dr. C. McC. Gordon finished a series of measurements of the potentials of galvanic cells composed of metallic plates immersed in fused salts at high temperatures, which led to an interesting application of the Nernst formula; Mr. E. Collins nearly completed the attempt to verify with the utmost nicety Faraday's law of electrolysis; Mr. G. N. Lewis made an accurate series of experiments upon the contact potentials of amalgams of varying strengths in salt solutions, and extended his practical as well as his mathematical work to the con-

sideration of the unamalgamated metal; Messrs. W. L. Harrington and L. S. Henderson studied an interesting case where the addition of a solid to a solution caused a lowering instead of a rise in its boiling point; Mr. F. R. Fraprie studied the transition temperatures of potassic manganous sulphate; Mr. H. B. Faber investigated the solubility of silver salts in sodic thiosulphate, and Mr. J. B. Churchill studied the melting point of crystallized sodic sulphate in order to secure a new fixed point for the standardizing of thermometers.

Dr. Torrey continued the study of nitromalonic aldehyde and allied bodies with Mr. O. F. Black.

The following work was done under the direction of Professor Hill: Mr. J. P. Sylvester continued his study of certain sulphonic acids of the furfuran group; Dr. I. K. Phelps studied the formation of dehydromucic acid from mucic and saccharic acids, and succeeded in finding an easy method for preparing this acid; Mr. A. S. Wheeler began the study of the products formed from dehydromucic acid by the action of sodium amalgam.

The following papers were published during the year: —

1. A Revision of the Atomic Weight of Nickel; first paper. By T. W. RICHARDS and A. S. CUSHMAN. *Proc. Am. Acad.* xxxiii, 95.

2. A Revision of the Atomic Weight of Cobalt; first paper. By T. W. RICHARDS and G. P. BAXTER. *Proc. Am. Acad.* xxxiii, 113.

3. On the Cuprosammonium Bromides and the Cuprammonium Sulphocyanates. By T. W. RICHARDS and B. S. MERIGOLD. *Proc. Am. Acad.* xxxiii, 129.

4. On the Oxide of Dichlormethoxyquinonedibenzoylmethylacetal. By C. LORING JACKSON and H. A. TORREY. *Proc. Am. Acad.* xxxiii, 141; *Am. Chem. Journ.* xx, 395.

5. On the Colored Compounds obtained from Sodid Alcoholates and Pieryl Chloride. By C. LORING JACKSON and W. F. BOOS. *Proc. Am. Acad.* xxxiii, 173; *Am. Chem. Journ.* xx, 444.

6. The Relation of the Taste of Acids to their Degree of Dissociation. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 121.

7. On the Conversion of Methylpyromucic Acid into Aldehydopyromucic and Dehydromucic Acids. By H. B. HILL and H. E. SAWYER. *Am. Chem. Journ.* xx, 179.

8. A Convenient Gas Generator and a Device for Dissolving Solids. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 189.

9. Die Einwirkung des Jods auf das Bleisalz des Brenzcatechins. By C. LORING JACKSON and WALDEMAR KOCH. *Ber. d. deutsch. chem. Gesellsch.* xxxi, 1457.

10. A Table of Atomic Weights. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 543.

11. On the Cause of the Retention and Release of Gases Occluded by the Oxides of the metals. By T. W. RICHARDS. *Proc. Am. Acad.* xxxiii, 397; *Am. Chem. Journ.* xx, 701.

12. The Transition Temperatures of Sodid Sulphate: a new Fixed Point in Thermometry. By T. W. RICHARDS. *Am. Journ. Science*, vi, 201.

Professor Richards also gave an address upon the Progress in Physical Chemistry before the Chemical Section of the American Association for the Advancement of Science.

The lecture room upon the third floor of Boylston Hall, which has long been used for our smaller classes, proved inconvenient in that it was far removed from the apparatus and collections used in the preparation of experimental lectures. The large room on the south side of the second story, in which this material had been stored, was very high, and a vacant space of several feet had been left between its ceiling and the floor above, when the extensive alterations upon the building were made in 1871. During the summer the ceiling of this room was raised and a new floor laid, dividing it into two stories. The lower story gave floor space enough for a small lecture room capable of seating fifty persons and for a Director's office which had long been needed, while the upper floor, which was readily accessible from either of the three lecture rooms below, gave substantially the same space for the storage of apparatus as the old room. The lecture room in the third story which has thus been set free can next year be fitted up to meet the particular demand which may then seem most pressing.

When the ventilation of the laboratory was improved in the summer of 1895, it was seen that the flues at the west end of the building were too small to secure the proper ventilation of the large lecture room in the second story, but the laboratory was not able at that time to meet the expense of building a larger flue. A brick duct with an area of over ten square feet has now been built, and fitted with a fan large enough to secure an adequate supply of air.

HENRY B. HILL, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — The number of students who took courses in Physics for the year 1897-98 was 367. The following list gives the numbers in the various courses:—

1897-98.	
Physics <i>B</i>	101
“ <i>C</i>	72
“ 1	100
“ 2	3
“ 3	14
“ 4	14
“ 6 ¹	37
“ 6 ²	10
Carried over	351
Brought over	351
Physics 9	8
“ 20 <i>a</i>	2
“ 20 <i>b</i>	1
“ 20 <i>c</i>	1
“ 20 <i>d</i>	1
“ 20 <i>e</i>	3
	367

Two graduate students have been appointed to professorships — William Duane, 1893, Professor of Physics in the University of Colorado, and A. H. Patterson, 1892, Professor of Physics in the University of Georgia. Mr. G. A. Campbell, 1892, has obtained a position in the research laboratory of the American Bell Telephone Co. Seven graduate students have been occupied during the year upon researches. Three of the number have also acted as assistants in the various laboratory courses. Several of the investigations upon which these students have been engaged have been in progress for two years, and they all promise to yield important results.

Mr. Theodore Lyman and Mr. C. H. Colpitts, working under the direction of Professor Sabine, have succeeded in opening an important field of research in the measurement of extremely short wave lengths of light. They have obtained photographs of Metallic lines corresponding to wave lengths of about $\frac{1}{280000}$ of an inch in length. The shortest wave length of the vapor of a metal hitherto measured is $\frac{1}{140000}$ of an inch. It is probably that even shorter wave lengths of light can be measured. The results of this investigation show also that quartz absorbs waves shorter than $\frac{1}{140000}$ of an inch. In this respect it acts like the earth's atmosphere, which, therefore,

must prevent our studying even by photographic means, the extreme ultra violet region of the spectrum of the sun and the stars.

It is believed, however, that such very short wave lengths of light have an important bearing upon the subject of electricity and magnetism, and it is more than probable that they are concerned in the phenomena of the X rays. The results of Mr. Lyman and Mr. Colpitts were obtained by exhausting of air the measuring apparatus, the entire measurements being conducted in a vacuum.

Professor Peirce and Dr. R. W. Willson published in the *Proceedings of the American Academy* for 1897-98 a paper on the thermal conductivity of certain poor conductors. This work stands in the first rank of physical investigation whether one regards the mathematical knowledge displayed or the experimental skill involved, and must always be referred to as the standard in the subject treated.

Professor Hall read a paper at the meeting of the American Association held in Cambridge during last August, on the results of his investigation in Heat Conductivity. In connection with Mr. Heywood, a graduate student, he studied the Hall effect in electrolytes; and showed that the results of recent investigators are rendered uncertain by convection currents which are caused in Magnetic fields.

In a paper entitled "Enquiry into the nature of Electrical discharges in air and gases," *Proc. Am. Acad.*, 1897-98, I have shown that ordinary atmospheric air under the stress of very high electromotive force acts like a good conductor. This result is of present interest on account of the endeavors to transmit power through the upper regions of the atmosphere without the use of wires. My apparatus shows that the loss of energy at the generating "station" would be very great. It appeared also from the investigation that electrical charges can produce phosphorescent light similar to that excited by the violet rays of sun light, and also by the X rays. This result is of theoretical importance, and was referred to by Sir William Crookes in his address this year as President of the British Association for the advancement of Science.

It is now ten years since the establishment of the laboratory workshop and other mechanical appliances have made possible extended physical investigations and original work by graduate students. The intellectual work of the laboratory during the past year easily places it, in my opinion, in the first rank of American laboratories; and this result is due to the able and harmonious coöperation of my colleagues, Professor B. O. Peirce, Professor Hall, and Asst. Professor Sabine.

The endowment of the Physical Laboratory is \$75,000. This endowment seems small when one considers the number of instrumental appliances necessary for research, the importance of Physical Science, and the new demands which its remarkable progress creates. The continued fall in the rate of interest makes it desirable that this endowment should be increased to at least \$100,000.

JOHN TROWBRIDGE, *Director*.

THE PSYCHOLOGICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY :

SIR, — During the past year the most important improvement in the equipment of the Psychological Laboratory was the division of the largest room into five small rooms. The laboratory occupying the upper story of Dane Hall consists now of eleven rooms, of which one is used chiefly as a lecture room and another only as a reading room; of the remaining nine working rooms three can be used as dark rooms. The additions to the instrumental equipment were only small, since the regular appropriations to the laboratory hardly allowed more than the payment of the current expenses. As the first equipment with apparatus was rather complete, the inability to supplement it much in recent years has so far not stood in the way of the work in the laboratory; but in the near future extensive additions will probably prove unavoidable.

The instruction in experimental psychology has been changed during the last year in several ways. First, a new half-course was added (Phil. 14²), given by Mr. Lough as an advanced practical training course in psychological laboratory work. While Philosophy 14¹ demands from the students, as their first introduction into laboratory work, merely the performance of a prescribed set of simple experiments, taken mostly from the field of sensation and perception, this advanced training course adds a set of small investigations from which no gain for science is expected, but which train the students, mostly undergraduates, to take the attitude of real research work. The new half-course forms thus a bridge between the elementary training course and the original research work of the advanced students (Phil. 20*a*).

As the laboratory has to furnish also the instruments for the demonstrations and experiments in the psychological lectures, it may be here the right place to mention the change which was introduced last year with regard to the place of these experimental illustrations in the lecture courses. In earlier years the elementary psychology (second half of Phil. 1*a*) gave the outlines of empirical psychology with rather slight references to experimental work and with rather few demonstrations; the course in advanced psychology (Phil. 2) covered

the same ground with more details, and more experiments. As it appeared desirable, first that the elementary and the advanced courses should not coincide with regard to their substance, secondly that the more detailed study of experiments be transferred to the pure laboratory courses, and thirdly that more room be made for the discussion of the philosophical principles of psychology, we have tried — and it seems with full success — an essential change. The whole empirical psychology is now given in Philosophy 1, the lectures there being illustrated as much as possible with experimental demonstrations, while the advanced psychology (Phil. 2) is confined to an advanced discussion of the fundamental principles of psychology. As Philosophy 1 has been a course of over 300 students, it became necessary to manufacture the instruments on a scale large enough to demonstrate them to a large audience. It has been therefore an important part of the work of the laboratory in the last year to construct apparatus which suits this purpose.

The whole instruction in psychology has thus been in the last year arranged on the following plan: Philosophy 1a² (Münsterberg) outlines of empirical psychology, with special emphasis on the experimental side. For those who wanted to go on with the theoretical psychology the next step was Philosophy 2 (Münsterberg) a lecture course on the fundamental conceptions; and finally the Psychological Seminary (Phil. 20b) (James). For those who wanted to go on with experimental psychology, Philosophy 14¹ (Lough) and Philosophy 14² (Lough) were the natural steps forward; and, finally, the research work in the laboratory (Phil. 20a) (Münsterberg and Lough) completed the series. Practically most students who specialize in psychology combine studies in both directions, experimental and theoretical.

The original research work, which forms the most essential part of the activity in the laboratory, was carried out by fourteen graduate students, a number which we could not well accommodate before the above mentioned division of the one large room into the five small rooms was made last spring. Twelve different investigations were carried on; three of them were offered and accepted as theses for the Ph.D. Mr. Lough's doctorate thesis was on "The Intensity of Sensation," Mr. Solomons' on "The Fusion of Touch Sensations." One of the three was by a student of Radcliffe College (Miss E. Puffer) whose thesis on "Symmetry" was examined by the department as if it was for the Harvard Ph.D.; and her work, — the thesis together with the oral examination, — was considered as proving her "unusually well" prepared for the degree.

Among the other investigations, which mostly have to be continued during the present year, the majority belonged to the study of the more complicated mental processes, such as emotion, judgment, time-perception, attention, volition, while the study of the sensations, which constitutes the greatest part of the work in other psychological laboratories, stood here in the background. In the effort to conquer steadily new fields of mental life for experimental treatment the most characteristic feature of the year's laboratory work was perhaps the systematic extension of our methods to the aesthetic processes, such as rhythm in poetry, composition in painting, etc. The publications of the laboratory (Dearborn, Spindler, Solomons, etc.) are continued as "Studies from the Harvard Psychological Laboratory" in the *Psychological Review*.

HUGO MÜNSTERBERG,

Professor of Psychology.

THE OBSERVATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—By the death of William Augustus Rogers, the Observatory has lost a staunch friend, who for nearly twenty years was one of its most active and distinguished officers. From 1870 to 1887 nearly all the observations with the meridian circle were made by Professor Rogers, and although afterwards called to another position he still retained charge of the reduction of these observations which was nearly completed at the time of his death. The results fill seven volumes of the *Annals* and complete his great work on the positions of the stars of the ninth magnitude and brighter in the zone $+50^{\circ}$ to $+55^{\circ}$. His observations of a fundamental catalogue of bright stars, including about seven thousand transits, made during the years 1880 to 1883, are still unreduced.

Two important additions to the resources of the Observatory have been received—the sum of twenty thousand dollars by the will of Charlotte Maria Haven, and twenty-five thousand dollars by the will of Eliza Appleton Haven. The income of both these sums may be used for direct purposes connected with Astronomical Science at the University Observatory. The wishes of their brother, Horace Appleton Haven, have thus been remembered for a period of half a century and are now fulfilled. The absence of restrictions greatly increases the value of these unexpected and most welcome gifts. The annual work of the Observatory need not be diminished, as might otherwise have been necessary, from the continued decrease in the rate of interest derived from its invested funds.

The second Conference of astronomers and physicists was held at this Observatory on August 18, 19, and 20. The attendance was large, and ninety-two persons were present who were technically interested in our work. No room in the Observatory was large enough to accommodate the Conference. The meetings were accordingly held in the parlor of the residence. The weak, as well as the strong, points of the Observatory were brought out by these meetings. The main building is inadequate and old, and the instruments are not of the largest size or latest construction. On the other hand, nearly all of the assistants were present, although

thus losing a portion of their summer vacations. Their voluntary aid enabled the work of the Observatory to be shown in a way that would otherwise have been impossible. The value of the Conference to the Observatory was very great. Our work was brought to the personal attention of a large number of the astronomers and physicists of the country. This was especially the case with three members of the Conference, Professors Myers, Snyder, and Du Bois, who were enabled to pass several weeks in Cambridge and to study the work of the Observatory in detail. This opportunity for discussion and consultation with other astronomers proved to be so beneficial that it is hoped it may be repeated. Reports of the Conference will be found in *Science*, and in the *Astrophysical Journal*.

As the organization of the Harvard College Observatory is unlike that of many similar institutions, it may be worth while to describe it. In large observatories it is not unusual to establish a number of departments, each under the entire charge of an astronomer who is often unaided by assistants. The institution thus becomes a series of small observatories under one roof, but in other respects quite independent. The advantages of this plan are, first the education of a group of astronomers of the highest grade, each of whom is enabled to devote his entire energy to his work, and the illness or failure of one in no way diminishes the efficiency of the others. On the other hand, there is often a lack of coöperation, — it is a ship in which all the sailors are captains. It is not clear that better results are thus obtained with a given expenditure of money, than if assistance was given to amateurs who had displayed especial skill in their work, either by furnishing them with suitable instruments, or means for publication. The power of the whole is not greater than that of as many detached small observatories.

The Director of the Harvard College Observatory takes immediate charge of the various departments, in many cases making a daily inspection and planning the work in detail. Many of the assistants are skilful only in their own particular work, but are nevertheless capable of doing as much and as good routine work as astronomers who would receive much larger salaries. Three or four times as many assistants can thus be employed, and the work done correspondingly increased for a given expenditure. This method does not offer the same opportunity for the advancement of individuals, and too much depends upon a single person — the Director. The advantages for coöperation, or for undertaking large pieces of work are very great, and the latter is especially marked since this Observatory maintains stations in the southern as well as in the northern

hemisphere. The same plan of work can thus be carried out for all stars from the north to the south pole, and the experience gained at one station greatly aids the work at the others. Moreover, uniformity of plan of publication is secured, and on special occasions, as during eclipses, meteoric showers, etc., large numbers of skilled observers are available on short notice. Each method has its advantages, and it seems advisable that this method should continue to be followed in one large Observatory.

Considering the various departments in the order in which they are discussed in this report, we have the following general division of work :—

The observations with the 15-inch Equatorial telescope are made and reduced by Mr. O. C. Wendell, assisted by Mr. R. H. Frost and Mr. F. C. Spencer. Mr. W. M. Reed observes with the 6-inch Equatorial. The meridian circle is in charge of Professor Arthur Searle, aided by Mr. J. A. Dunne, Miss L. L. Hodgdon, Mrs. I. W. Eddy, Miss L. Winlock, and Mrs. P. F. Bonesteel. Various determinations of stellar positions have been made by Miss A. Winlock, assisted by Miss S. C. Bond. The observations with the meridian photometer have been made by the Director and recorded by Messrs. R. S. Davidson and E. P. Fleming. Mrs. W. P. Fleming has charge of the Henry Draper Memorial, together with the other work done in the Astrophotographic building. She has been assisted by Miss L. D. Wells, Miss M. C. Stevens, Miss E. F. Gill, Miss E. F. Leland, Miss H. I. Stevens, Miss I. E. Woods, Miss E. G. Wolffe, Miss A. J. Cannon and Miss S. E. Breslin in the discussion of the photographs, and by Miss F. Cushman, aided by Miss A. J. McKay and Miss M. A. Gill, in the reduction of the observations made with the meridian photometer. The photographs have been taken by Mr. E. S. King, assisted by Messrs. E. F. Waite and H. R. Colson. Assistant Professor W. H. Pickering has continued the preparation for publication of the observations made at Arequipa under his direction. Associate Professor Solon I. Bailey has remained in charge of the Arequipa Station. Since his return to Cambridge, Mr. W. B. Clymer, Dr. De Lisle Stewart, and Sr. J. E. Muniz have carried on the observations at Arequipa. The meteorological observations at Mollendo have been made by Mr. Turner, those at La Joya by Sr. Galindo, those at Cuzco by Mr. Krämer, and those at Echarati by Sr. Pimentel. Sr. Ayulo has undertaken the trips to El Misti, changing the record sheets there, and also at Alto de los Huesos and Mt. Blanc Stations. Mr. Rotch's assistants at the Blue Hill Observatory are Messrs. H. H. Clayton, S. P. Fergusson, and A. E.

Sweetland. Mr. H. W. Winkley has charge of the library under the supervision of Mr. J. R. Edmands. Mr. Gerrish, assisted by Mr. Attwill, has charge of the laboratory, workshop, and general correspondence.

OBSERVATORY INSTRUMENTS.

East Equatorial. — The observations with this instrument have been made by Mr. O. C. Wendell and have been of the same general character as in previous years. About twenty-five thousand photometric light comparisons have been made, largely with the new polarizing photometer with achromatic prisms described in the annual report for 1895. With this instrument, 1,424 photometric comparisons were made of W Delphini, 2,796 of U Pegasi, 2,680 of R Canis Majoris, 1,520 of S Cancri, 1,136 of Y Cygni, 704 of SS Cygni, 624 of S Antliae, 580 of T Andromedae, 568 of U Vulpeculae, 480 of Y Aquilae, 160 of ST Cygni, and 668 of Planet DQ. 4,436 photometric comparisons have been made of stars between the tenth and fourteenth magnitudes, used as comparison stars for variables of long period. In addition to the above, 2,004 comparisons were made of β Lyrae, 864 of α Ceti, 264 of U Camelopardali, and 600 of the relative brightness of the components of double stars, with a second photometer adapted to the comparison of stars too near together to be measured with the first instrument. The same instrument has been used in the photometric measurement of Jupiter's satellites while undergoing eclipse. 23 of these eclipses have been observed, making the total number 660. The systematic observation of variable stars of long period, throughout all their changes, and the reduction of the results to the scale of the meridian photometer have been continued. A few estimates have been made by the method of Argelander, generally when stars were too faint to be observed with smaller instruments. 573 estimates of the intervals between faint comparison stars have also been made.

Similar observations of variables and comparison stars have been made with the West Equatorial. With it 527 estimates of variables have been made by Mr. Reed, and 362 by Miss Cannon. Mr. Reed has also made 362 estimates of comparison stars for variables. 403 estimates have been made by Mr. Waite, of SS Cygni, S Cephei, and U Orionis. 1,105 estimates of variables have been made by Mr. F. E. Seagrave of Providence, principally with his 8-inch telescope, and have been communicated to this Observatory. In addition to the above, 624 comparisons of β with ω Persei have been made by Mr. Wendell, with a photometer mounted as a horizontal telescope.

In observing variables, the same sequences of comparison stars are used by all the observers and the same magnitudes are used in the reductions. The observations of seventeen variables north of $+50^\circ$ have been continued. The observations of these variables up to the present time, together with the photometric values of the comparison stars, have been reduced and will shortly be published. The selection of the comparison stars for 60 other variables is nearly completed, the observations for determining their photometric values nearly finished, and the reduction is in progress. Observations of these variables are regularly made and the scheme is being extended to other variables. The coöperation of other astronomers is invited in this work, especially in following the variables when too faint for observation with our 15-inch telescope. Charts of the regions, and lists of comparison stars with their photometric magnitudes, will be furnished to any astronomers who desire to take part in this work.

Meridian Circle. — The reduction of the observations of fundamental stars, made during the years 1880 to 1883 inclusive by Professor Rogers, was not complete at the time of his death, already mentioned in this report. The papers relating to this work have been collected and are now under examination with the view of forming plans for the completion of the reduction.

The revision of the southern zone, between the declinations $-9^\circ 50'$ and $-14^\circ 10'$, by additional observations of stars, the previous observations of which were insufficient or discordant, has been completed during the year. It is not now supposed that any further observations of this zone will be advisable, although the question cannot be absolutely decided until further progress has been made with the reductions. The number of dates on which observations were obtained was 19; the total number of observations was 699, of which 109 were of fundamental stars, 37 of circumpolar stars, and 553 of zone stars. The reduction of the observations made in recent years, and the correction of errors of computation in the previous work, has made satisfactory progress. As mentioned in the last report, provisional mean places for all stars observed before December 30, 1895, are now available for use. The recent publication of the corrections adopted by Professor Auwers for the places of the fundamental stars of the southern zones will permit the completion of all the reductions as rapidly as they can be reached.

Meridian Photometer. — Observations with the meridian photometer have been made by the Director on 152 nights. The total number of photometric settings is 73,684, making a total of 473,216

since the return of the instrument from Peru in 1892. The work on the northern stars planned for this instrument is now completed, and includes, first, the reobservation on three nights of all the stars in the Harvard Photometry, that is, those of the sixth magnitude and brighter north of -30° . Secondly, the observation on two nights of all additional stars of the magnitude 7.5 and brighter, north of -40° , excepting some of those contained in Volume XXIV. Thirdly, comparison stars brighter than the tenth magnitude for 81 variable stars of long period. The total number of these comparison stars is 826. Fourthly, the determination of the light curves of variable stars of short period not in clusters and north of -40° . Numerous measures have also been made of Uranus, Neptune, and the four brighter asteroids, Ceres, Pallas, Juno, and Vesta, also of various stars of the Algol type, and of other objects.

This work being completed, it is proposed to send the photometer to Arequipa next spring, where a series of measures of the southern stars will be made by Professor Bailey. All stars of the magnitude 7.0 and brighter, and south of -30° , will be observed, thus again determining the magnitudes of the stars in the Southern Harvard Photometry.

Observations with the 12-inch telescope mounted horizontally have been begun by the Director in order to determine the magnitudes of the fainter stars. The star to be measured when on the meridian is reflected into the field by means of a mirror and is then compared with an artificial star formed by allowing the flame of a Welsbach burner to shine through a minute hole. The observation is made by varying the light of the artificial star by means of a wedge of shade glass until it is equal to the real star. By measuring, at short intervals, adjacent stars whose light has already been determined by the meridian photometer the results are reduced to the scale of that instrument.

HENRY DRAPER MEMORIAL.

The number of photographs taken with the 8-inch Draper telescope is 2,192. The examination, by Mrs. Fleming, of the spectra contained on these plates, and of those taken with the Bruce and Bache telescopes, has led to the discovery of twelve new variable stars, six of which were detected from the presence of bright hydrogen lines in their spectra. Nine stars have been found to have spectra of the fourth type, seventeen to have spectra of the fifth type, eight stars have spectra in which the hydrogen line $H\beta$ is bright, five in which the spectrum is peculiar, and ten gaseous nebulae. The hydrogen

lines have been shown to be bright in the spectra of the known variables, V Tauri, U Cancrī, and T Capricornī. The spectrum of a meteor, showing five bright lines, was found on one of these plates. The star A. G. C. 20263, β Lupi, has been found to be a spectroscopic binary. A variable star has also been found by Miss L. D. Wells. The detailed study of the spectra of the northern stars, published in Vol. XXVIII, Part I, is being extended to the southern stars by Miss A. J. Cannon. This study has led to the discovery that the bright hydrogen lines vary in the spectra of the stars A. G. C. 9181 and 14145. A photograph of the spectrum of the aurora, showing four bright lines, has been taken by Mr. King. Several photographs have been obtained of that remarkable object, Witt's Planet DQ.

The number of photographs taken with the 11-inch Draper telescope is 873. Numerous plates have been obtained of Jupiter's satellites while undergoing eclipse, and of four variable stars of the Algol type, U Cephei, S Cancrī, U Coronae, and W Delphini. By giving exposures of a second or less with the apparatus used in taking these plates two excellent photographs have been obtained of stars undergoing occultation, one being a disappearance, the other a reappearance. A photograph of α Canis Majoris was also obtained in the middle of the day under conditions which render it probable that bright stars could be usefully photographed in the day-time in a transit instrument, or while undergoing occultation. A modification of the same instrument, in which the exposures are long instead of short, serves to detect all variables of short period in a large portion of the sky. It is proposed to photograph the entire sky in this way, and a Cooke Anastigmatic lens has already been procured and the work begun upon the northern stars. 431 photographs, each extending over three hours, have been obtained with the transit photometer.

An instrument has been constructed by which prismatic spectra can be converted into normal spectra, or any other desired change of scale affected. Similar results have been obtained by Mr. King, by a more convenient but less accurate method; enlargements are made, inclining the plates by an amount computed by the theory of transversals.

Photographic trails of stars in the vicinity of the north pole have been taken on 179 nights with the 15-inch Draper reflector. Exposures of two, one, and two minutes are made automatically every hour throughout the night. Photographs are obtained of about 20 stars within half a degree of the pole. It is believed that the material is thus furnished for an accurate determination of the constants of

aberration, nutation, and precession. Measures of the precise positions of about 500 stars within 30' of the north pole have been made by Miss E. F. Leland.

BOYDEN DEPARTMENT.

During the greater portion of the year Professor Bailey has been in Cambridge. In his absence the work of the Station in Arequipa has been carried on by Messrs. Clymer, Stewart, and Muñiz. The number of photographs taken with the 13-inch Boyden telescope is 464, consisting of charts of clusters, charts for the detection of parallax, and spectra of the brighter stars. The systematic examination of stars south of -30° , of magnitudes 6.3 to 7.0, for the detection of new close doubles has been continued by Mr. Clymer, who has also observed visually southern variables once a month when possible.

1,436 plates have been made with the 8-inch Bache telescope. These are chiefly charts of ten minutes exposure designed to cover the southern sky each year. A small number of charts were made of the Magellanic clouds and other interesting regions with exposures of from four to six hours. A few spectrum plates were also obtained.

The work of examining all close clusters for the detection of variable stars has been extended. More than twenty clusters have now been systematically examined by Professor Bailey, including 19,050 stars of which 509 are variable. The most striking results have been found in the four clusters ω Centauri, Messier 3, Messier 5, and Messier 15. Professor Bailey has given special attention, however, to the discussion of the periods and light curves of the 125 variables in the cluster ω Centauri. The preparation of this material for publication is now well advanced.

The meteorological stations have been maintained as in previous years, except that the coast station at Mejia has been again placed in the adjacent town of Mollendo, and that in Cuzco has been moved to a better site. These changes became necessary from the difficulty of obtaining reliable observers continuously in one place. A station, omitted in the last annual report, is also maintained on the eastern side of the Andes, at Echarati, at an elevation of about 3,000 feet. On the summit of El Misti observations have been made and records obtained as regularly as possible. The new meteorograph has not proved successful, but records have been obtained by the Richard instruments during a large part of the year.

An accurate determination of the position of the Station has been made by Professor Upton. Telegraphic signals were exchanged with Arica, with the resulting longitude $4^{\circ} 46' 11''.71 \pm 0''.032$. The latitude was found to be $-16^{\circ} 22' 28''.0 \pm 0''.19$.

THE BRUCE PHOTOGRAPHIC TELESCOPE.

The work of this instrument during the past year has been successfully carried on by Dr. De Lisle Stewart. In some cases the images on charts having exposures of three or four hours show no deviation from the circular form. For long exposures, as heretofore, the telescope has been guided by following stars visually in two eye-pieces, placed on opposite sides of the plate in the field of the main telescope. For short exposures, however, of ten to fifteen minutes, it has been found more satisfactory to make use of the 11-inch finder, using an eye-piece attached to the frame which carries the plate holder, so that the guiding is done by the regular slow-motion screws.

During the year, 539 plates have been obtained. Of these, 275 are charts with exposures of 10 minutes; 200, charts with exposures of 60 minutes; 20, spectrum plates with exposures of 60 minutes or more; 12, charts with exposures of from 180 to 300 minutes; and plates of planets, comets, etc.

Professor Turner, of Oxford, courteously offered to determine the distortion of the Bruce telescope. Contact prints of some of the plates were sent to him, and from measures of them he concludes that with this instrument "stars are photographed at Harvard over a region at least $5^{\circ} \times 5^{\circ}$ with an optical distortion which is quite small and easily manageable."

BLUE HILL OBSERVATORY.

The work of the Observatory was performed by three assistants under the direction, and at the expense, of Mr. Rotch. The printing of the usual observations for 1897 in Volume XLII, Part II, of the Annals has been delayed in order to include the measurements of clouds made during the international "cloud-year" and now being reduced. Apart from the routine observations, the chief work was the investigation of the upper air from automatic records obtained with kites, which was successfully continued and aided by a grant of money from the Hodgkins Fund of the Smithsonian Institution. The maximum heights reached were 11,085 feet above Blue Hill on October 15, 1897, and 11,445 feet on August 26, 1898, when baro-

metric pressure, air temperature, relative humidity, and wind velocity were recorded. The average height of the flights during the past summer was nearly a mile and a half. To give promptly to the public and to specialists information of interest three "Bulletins" have been issued since January. The two first gave the results of some remarkable kite-flights and the last described the very severe storm of January 31—February 1, 1898.

MISCELLANEOUS.

Library. — The library of the Observatory has been increased during the year by the addition of 400 volumes and 319 pamphlets. The total numbers of volumes and pamphlets in the library on October 1, 1898, were 9,035 and 12,787 respectively. The total number of pamphlets on October 1, 1897, was 12,468 instead of 12,992 as given in the last report. Especial efforts are being made to render the meteorological, as well as the astronomical, collections of publications here, and at Arequipa, as complete as possible.

Telegraphic Announcements. — New and improved methods for the distribution of telegraphic announcements have been introduced during the year. A system of neostyle bulletins has been established by which translated copies of telegrams are sent by first-class mail to such institutions and individuals as can make use of them. Points near Boston are reached in this manner almost as promptly as by telegraph, and without expense to the recipients, the entire cost being defrayed by the Observatory. Announcements will be distributed by telegraph as heretofore to such subscribers as wish to pay for them. The cost of all cable messages sent to Kiel for distribution in Europe has been borne by the Observatory as in past years, as has also that of a large number of domestic telegrams. Astronomers are requested to send to this Observatory announcements of their discoveries for transmission to the observatories of Europe and America, as heretofore. To secure prompt attention it is requested that all telegrams be addressed "Harvard College Observatory, Cambridge, Mass." All correspondence relating to telegrams and announcements should be addressed to the Director.

The November Meteors. — It is expected that the great shower of meteors seen in 1833 and 1866 will again occur in 1899. As this time approaches preliminary observations are being made. On November 13, 1897, two stations were occupied, one at this Observatory, the other at the Blue Hill Observatory twelve miles south.

Visual and photographic observations were made at both stations. Ten officers of the Observatory, assisted by twelve Harvard students, took part in this work and observed 91 meteors at Cambridge and 47 at Blue Hill. More extensive preparations have been made for the observations this year. A series of stations has been selected, encircling the Earth, at which it is hoped counts of the number of meteors seen will be made during the entire time that the Earth is passing through the meteor stream. Professor Upton of Brown University, with a party of students has undertaken to make visual observations, in conjunction with those made here to determine the parallax. Mr. Seagrave of Providence also expects to keep a careful watch on the radiant point with his 8-inch telescope, thus repeating his work of last year. Photographs will be taken simultaneously at Tufts College, two miles north of Cambridge, and here. A large number of photographic instruments will be in use. Next year it is hoped that this work may be still further extended.

Publications. — Pages 141 to 228 of Volume XXIII, Part II, of the *Annals* are now in print, and contain a comparison of the magnitudes in Volume XXIV with those of the *Durchmusterung*, of the *Uranometria Argentina*, and of the *Harvard Photometry*. A complete reduction is also given of the observations of the light of the stars by Sir William Herschel, from which it appears that a century ago he determined the light of nearly three thousand stars with an accuracy closely approaching that of our best modern catalogues. Pages 117 to 206 of Volume XXXII, Part II, are in print, and contain visual observations of the Moon and planets by Professor W. H. Pickering. Pages 1 to 93 of Volume XXXIII are in print, and contain photometric observations of asteroids, a study of *Gegenschein*, and a reduction to the photometric scale of the observations of variable stars of long period by Argelander and Schönfeld. Volume XLI, No. V, containing a discussion of the Meteoric Shower of November 13, 1897, and Volume XLII, Part I, Observations made at Blue Hill in 1896, have been printed and distributed.

The following sixteen circulars have been issued this year: —

20. Spectrum of a Meteor. November 8, 1897.
21. A Variable Bright Hydrogen Line. A new Spectroscopic Binary.
January 1, 1898.
22. Photographic Magnitudes. January 4, 1898.
23. The Variable Star U Pegasi. January 14, 1898.
24. Variable Star Clusters. New Variable Stars. January 31, 1898.
25. Polarizing Photometer. February 8, 1898.

26. Occultation of 26 Arietis observed photographically. March 3, 1898.
27. Comparison Stars for Variables. Miscellaneous Notes. March 7, 1898.
28. Photographic Spectrum of the Aurora. March 23, 1898.
29. Variable Stars of Short Period. May 21, 1898.
30. The Supposed Variable Star Y Aquilae. May 25, 1898.
31. The November Meteors. May 30, 1898.
32. Stars having Peculiar Spectra. Stars resembling ζ Puppis. June 21, 1898.
33. Variable Stars in Clusters. September 17, 1898.
34. Witts' Planet DQ. September 30, 1898.

On the completion of the fiftieth of these circulars it is proposed to issue a title page and index so that they may be bound and preserved for reference in libraries and observatories. Extra copies have been printed so that a general distribution of them may then be made.

The following minor publications have also appeared during the year: —

Fifty-second Annual Report of the Director of the Astronomical Observatory of Harvard College. Cambridge, 1897.

The Algol Variable, + 17° 4367. W Delphini. *Astrophysical Journal*, vii, 23.

EDWARD C. PICKERING, *Director*.

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

During the past year the usual courses of instruction have been given at the Museum in the Natural History Laboratories. Those in Zoölogy were given by Professor Mark, Doctors Davenport, Parker, and Castle, assisted in the Laboratory work by Messrs. R. W. Hall, and F. C. Waite. Professors Shaler and Davis, together with Messrs. Robert T. Jackson, R. DeCourcy Ward, T. A. Jaggar, Jr., and J. B. Woodworth, gave courses of instruction in Geology, Palaeontology, Physical Geography, and Meteorology. The Assistants in these departments were Messrs. C. H. White, J. E. Woodman, and J. M. Boutwell.

The Newport Marine Laboratory was not opened this year to students of the Zoölogical Department as heretofore. The advanced students have found the necessary facilities at the Laboratory of the United States Fish Commission at Wood's Hole, to which students properly qualified have been admitted by the Hon. George M. Bowers, U. S. Fish Commissioner. The income of the Virginia Barret Gibbs Scholarship has been assigned according to the terms of the gift, and the income of the Humboldt Fund has been applied to assisting students working at the Wood's Hole Laboratory.

Professor Faxon reports that the principal additions to his department consist of a large and very complete collection of North American land and fresh-water shells (over 20,000 specimens), presented to the Museum by Dr. R. Ellsworth Call of Lawrence, Indiana, and of a very beautiful collection of marine shells from the Straits of Malacca, presented to the Museum through Professor Goodale.

Messrs. Henshaw, Garman, and Brewster report the collections under their care in excellent condition. The additions to their departments are enumerated in their reports. The departments in charge of Dr. Woodworth and Dr. Mayer need no special notice, as during the greater part of the year these two Assistants were absent with me in Fiji. Dr. Woodworth has left for Samoa to collect additional material for his Bololo paper, and Dr. Mayer has spent the greater part of the summer collecting Acalephs in the Tortugas and along the east coast of the United States.

To Professor Hyatt, to Mr. William Brewster, as well as to

Dr. R. T. Jackson, the Museum is indebted for the care of their respective departments.

The Exhibition Rooms have remained much as they were at the time of the last Report. A stand-pipe and hose have been placed in the Museum building in order to guard each floor against fire. The tables used for heating in the different Laboratories have been specially protected against the spreading of fire.

Specimens have been sent to Dr. Dendy, to Mr. H. A. Pillsbury, and to the Smithsonian Institution for examination, and a lot of Galapagos Turtles to the Hon. Walter Rothschild. A number of specialists have consulted the Entomological Department, and Mr. G. N. Calkins has examined our collection of Hydroids from the Pacific Coast of the United States.

In addition to the gifts specified in the different Reports, I may mention a collection of Fossil Medusae from the Cambrian of Alabama, presented by the United States Geological Survey. Fossils from Griffin Landing, Savannah River, presented by Mr. C. B. Moore of Philadelphia. The collections made during my expedition to Fiji consist of Land Shells, Reptiles, Insects, Corals, and pelagic animals. An interesting fossil Egg (*Struthiolithus*) was purchased for the Museum through Mr. Eastman, and forms the subject of one of the Bulletins issued during the past year.

The Museum has, as in former years, provided the room for a great part of the instruction in Geology and Zoölogy given to the students of Radcliffe College, as well as to the large classes in the Summer School of Geology.

It seems only reasonable that some provision should be made for the use of the rooms so occupied, as the Museum has no source of income to meet the ever increasing demands made upon it by the policy of the University in granting the facilities of the Museum to persons who in no way promote its material welfare.

The increase of the Library by purchase, gift, and exchange has been somewhat larger than in former years. The Library now numbers nearly 32,000 volumes. Among the valuable additions to it I may mention some volumes of pamphlets on Land Shells, collected by Mr. William G. Binney, and a number of volumes from the library of the late Colonel Theodore Lyman.

The Reports on the "Albatross" Expedition of 1891 are progressing favorably. Mr. Westergren has completed the Plates to accompany the Report on Fishes, and Mr. Garman has the text well advanced. The Report on the Ophiuridae, by Messrs. Lütken and Mortensen, is in the press.

The Report on the *Acalephs*, by Dr. Otto Maas, has been published as No. 1 of Vol. XXIII. of the *Memoirs*. Of the *Bulletin*, Vol. XXXI. has been published during the past year, and two numbers of Vol. XXIII., and seven numbers of Vol. XXXII. They contain six numbers from the Zoölogical Laboratory in charge of Dr. Mark, two papers by Mr. Eastman, and two by Dr. Woodworth, the *Isopods* of the "Albatross" Expedition, by Dr. Hansen, a Preliminary Report on the *Echini* of the same Expedition, by myself, as well as papers on *Dactylometra* and on Australian *Medusae* in conjunction with Dr. A. G. Mayer, and a Report on my Expedition to the Great Barrier Reef of Australia.

In connection with the "Blake" explorations, I have published an interesting paper by Professor R. T. Hill, on the Geological History of the Isthmus of Panama; and Professor Bouvier and Dr. Fischer have completed a memoir on the *Pleurotomaria* dredged by the "Hassler" off Barbados.

The Corporation has continued an appropriation of four hundred dollars to assist in publishing some of the theses from the Zoölogical Laboratory.

I spent the past winter in Fiji, accompanied by Dr. Woodworth and Dr. Mayer, in studying the Coral Reefs. The Expedition was most successful, the weather admirable, and an immense amount of material relating to coral reefs was collected. A preliminary account of the expedition has been published in the *American Journal of Science* for February and for July of this year. I hope during the early part of the coming year to publish the full Report of the Expedition, the text of which is nearly completed, while the accompanying plates are in the hands of the lithographers. In order to supply information which we could not obtain in our limited time I have been able, through the kindness of Professor David of Sydney, to engage Mr. E. C. Andrews to visit Fiji, and explore more in detail the elevated limestones which play so important a part in the history of the coral reefs of that group. Mr. Andrews reached Fiji in July, and has been at work there during the past summer.

I am specially indebted for facilities and assistance to Sir William C. Van Horne, and Mr. T. G. Shaughnessy of the Canadian Pacific Railroad, to Sir George O'Brien, Governor of Fiji, to the Hon. J. Stewart, Colonial Secretary, to Hon. W. L. Allardyce, Assistant Native Commissioner, to Mr. Berry, to Captain Calder, and to a number of friends in Fiji, to whom a great part of the success of our trip is due.

This will be the last Museum Report which I shall have the honor to make. My resignation both as Curator and Director of the Museum, to take effect at the close of the present academic year, has been accepted by the Faculty of the Museum, and by the Corporation. This resignation was accompanied by certain conditions which will be found appended.

The Faculty of the Museum has appointed Professor George L. Goodale and Dr. Henry P. Walcott as a Committee to take charge of the Museum, and Dr. W. McM. Woodworth has been appointed Assistant in charge.

Although my administrative connection with the Museum ceases now, I look forward to its future with no little concern. When the more intimate relation between the Museum and the University (dating back to 1876) was established, it was hoped that the new arrangement might prove advantageous to both institutions. So far as the Museum is concerned, this hope has not been fulfilled. While the divisions of Zoölogy and Geology in the University have been greatly expanded by the facilities afforded them by the Museum, the latter has gained no corresponding benefit from the University, nor has it received from the friends and graduates of Harvard the aid and support which might have been expected as a result of this mutual arrangement.

The funds available for carrying on the Museum and for promoting research are meagre in the extreme, and there are literally no means existing for the publication of the original work presented from the various laboratories. The slender thread which connected the Museum with the teaching departments at the time of its incorporation with the University is practically severed, the administration of the Museum being no longer in any way concerned with instruction, as was originally included in the articles of agreement between the University and the Museum. Under existing conditions the University Museum cannot hope to hold its own with similar institutions which have grown up in late years. The Natural History Museums in New York and in Chicago, connected as they are with municipalities which deal with them in a most generous and intelligent manner, will leave far behind a University Museum depending upon resources which grow annually less with a painful regularity.

ALEXANDER AGASSIZ.

CAMBRIDGE, September 1, 1898.

Publications of the Museum during 1897-98: —

Of the Bulletin: —

Vol. XXVIII. (Geological Series, Vol. III.)

No. 4. A Visit to the Great Barrier Reef of Australia in the Steamer "Croydon," during April and May, 1896. By A. Agassiz. pp. 56. 42 Plates. April, 1898.

No. 5. The Geological History of the Isthmus of Panama and Portions of Costa Rica. Based upon a Reconnaissance made for A. Agassiz. By R. T. Hill. pp. 138. 19 Plates. June, 1898.

[Vol. XXVIII. *is complete.*]

Vol. XXXI. (October, 1897 — May, 1898) contains: —

No. 1. Contributions from the Zoölogical Laboratory. LXXXIII. Contributions to the Morphology of the Turbellaria. II. On some Turbellaria from Illinois. By W. McM. Woodworth. pp. 16. 1 Plate. October, 1897.

No. 2. On the Relations of certain Plates in the Dinichthyids, with Descriptions of New Species. By C. R. Eastman. pp. 28. 5 Plates. October, 1897.

No. 3. Contributions from the Zoölogical Laboratory. LXXXIV. Trichonympha, and other Parasites of *Termes flavipes*. By J. F. Porter. pp. 24. 6 Plates. October, 1897.

No. 4. Contributions from the Zoölogical Laboratory. LXXXV. Variations in the Brachial and Lumbro-Sacral Plexi of *Necturus maculosus Rafinesque*. By F. C. Waite. pp. 24. 2 Plates. November, 1897.

No. 5. Reports on the Dredging Operations in the "Albatross" in 1891. XXII. The Isopoda. By H. J. Hansen. pp. 38. 6 Plates and Chart. December, 1897.

No. 6. Contributions from the Zoölogical Laboratory. LXXXVII. The Thoracic Derivatives in the Postcardinal Veins in Swine. By G. H. Parker and C. H. Tozier. pp. 14. March, 1898.

No. 7. Contributions from the Zoölogical Laboratory. LXXXIX. The Segmentation of the Nervous System in *Squalus acanthias*. A contribution to the Morphology of the Vertebrate Head. By H. V. Neal. pp. 54. 9 Plates. May, 1898.

[Vol. XXXI. *is complete.*]

Vol. XXXII. contains: —

No. 1. Studies from the Newport Marine Laboratory. XLI. On Dactylometra. By A. Agassiz and A. G. Mayer. pp. 12. 13 Plates. April, 1898.

No. 2. On some Medusae from Australia. By A. Agassiz and A. G. Mayer. pp. 8. 3 Plates. April, 1898.

No. 3. The Gordiacea of Certain American Collections. With particular Reference to the North American Fauna. By T. H. Montgomery, Jr. pp. 40. 15 Plates. April, 1898.

No. 4. Some Planarians from the Great Barrier Reef of Australia. By W. McM. Woodworth. pp. 6. 1 Plate. April, 1898.

No. 5. Reports on the Dredging Operations off the West Coast of Central America to the Galapagos, etc., by the U. S. Fish Commission Steamer "Albatross." XXIII. Preliminary Report on the Echini. By A. Agassiz. pp. 18. 13 Plates and Chart. June, 1898.

No. 6. The Nervous System of *Nereis virens* Sars. A study in Comparative Neurology. By J. J. Hamaker. pp. 48. 5 Plates. July, 1898.

No. 7. On Remains of *Struthiolithus Chersonensis* from Northern China, with Remarks on the Distribution of Struthious Birds. By C. R. Eastman. pp. 17. 1 Plate. July, 1898.

No. 8. Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U. S. Fish Commission Steamer "Albatross," during 1891, Lieut. Commander Z. L. Tanner, U. S. N., Commanding. XXIV. Preliminary Report on *Branchiocerianthus urceolus*, a New Type of Actinian, by E. L. Mark. pp. 8. 3 Plates. August, 1898.

[Vol. XXXII. *to be continued.*]

Of the Memoirs: —

Vol. XXIII. contains: —

No. 1. Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U. S. Fish Commission Steamer "Albatross," during 1891, Lieut. Commander Z. L. Tanner, U. S. N., Commanding. XXI. Die Medusen. Von Otto Maas. pp. 92. 15 Plates. September, 1897.

[Vol. XXIII. *to be continued.*]

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR, — In presenting the thirty-second report on the Museum and the various activities connected with it, the Curator has the pleasure of stating that the friends of the Museum have continued to manifest an active interest in its welfare. The results of this interest are to be seen in the many valuable specimens which have been added to the Museum, in the final arrangement and labelling of many of the collections, and in the publications that have been issued.

The explorations by Mr. Gordon in the Uloa valley and in the Caves of Copan were briefly mentioned in the last report. After his return in September, 1897, Mr. Gordon was employed to prepare reports on the expeditions of 1896 and 1897. These reports have been issued under one cover as numbers 4 and 5 of the quarto *Memoirs of the Museum*. The two maps, twelve plates, and thirty-seven figures in the text, are from drawings or photographs by Mr. Gordon. The colored plate is by the color-photographic process by the Tabor-Prang company of Boston. It is a decidedly successful experiment in this method of illustration where the reproduction of colors is essential.

As heretofore, in all matters relating to the Central American explorations, the Museum is indebted to Mr. Charles P. Bowditch (H. 1863) for his efforts in interesting friends in archaeological researches in Mexico and Central America. It has long been the hope of archaeologists that some knowledge of the Maya hieroglyphs might still be lingering among the native peoples of Central America from whom a clue to the translation of these glyphs might be obtained. For several years, Mr. Bowditch has entertained the belief that such a clue might possibly be found among the little known and isolated Lacandones of Guatemala. To this end the services of Mr. Teobert Maler have been secured to the Museum, and he is to visit the Lacandon country for this purpose. Mr. Maler is well known for his archaeological researches in Yucatan and Guatemala, and his preparation for this important research is certainly exceptional.

Mr. Willoughby's report on his explorations in Maine, carried on under the auspices of the Museum, has been published as No. 6 of

the Archaeological and Ethnological Papers of the Museum (octavo) under the title, "Prehistoric Burial-places in Maine." The paper is extensively illustrated from drawings and photographs by the author. The collections described are on exhibition in the Museum. This material was exhibited at the World's Columbian Exposition, partly in the Anthropological Building as illustrating "Methods of Archaeological Research by the Peabody Museum," and partly in the Liberal Arts Building in connection with the Harvard University exhibit. The publication of this paper is due to the generosity of Mr. Clarence B. Moore of the class of 1873. Mr. Moore has also contributed toward the salary of an assistant; and he has in other ways shown his continued interest in the Museum.

Mr. Stephen Salisbury (H. 1856) has for many years taken a special interest in the people and the archaeology of Yucatan, and it was through his influence that Mr. Edward H. Thompson was led to his archaeological researches in that country. For several years Mr. Thompson's work was reported to this Museum; then he was employed as one of the assistants in the Department of Ethnology of the World's Fair; and after that he was engaged for special research by the Field Columbian Museum. Having closed his work for the Chicago Museum he is now, thanks to Mr. Salisbury, to resume his connection with this Museum. No archaeologist has a wider knowledge of the ruins of the prehistoric cities of Yucatan, than Mr. Thompson, and no one is more desirous of solving the problems which they suggest. The future researches of Mr. Thompson in this field will unquestionably add much to the knowledge of this ancient American civilization.

Although there has been no special exploration from which large accessions might have been received as in former years, yet many valuable additions, particularly of an ethnological character, have been received by gift.

Dr. Alexander Agassiz (H. 1855), while engaged in scientific researches in connection with the formation of coral reefs in the Pacific, most kindly secured and presented to the Museum a large collection of objects illustrating the customs of the native tribes with which he came in contact during his expedition. Among these specimens is a canoe 27 feet in length, from the Solomon Islands. This canoe is believed to be the last of its type and Dr. Agassiz took special care to have it shipped to the Museum without injury. It is now on exhibition, and is a most valuable addition. Two of the singular mast-heads of canoes of the Fijians, one of which is from a large and ancient canoe, are rare and important objects. Two pieces of

kapa cloth from Fiji are remarkable for their great size as well as for the perfection of their manufacture, each being a single piece free from patching. One of these cloths or "bridal carpets" is 158 feet long and 4 feet 5 inches wide; the other is 136 feet 3 inches long and 9 feet 11 inches wide. Besides these exceptional pieces of kapa cloth, there are several garments, curtains, and small mats of the same material. The collection also includes pottery vessels, palm-leaf thatch used on houses, woven mats, fans and baskets of palm leaf, kava bowls, and other wooden bowls, dishes and drinking cups, kapa beaters of several patterns, wooden pillows, fly brushes, war clubs, spears, bows and arrows, paddles, adze blades and dance girdles, all from Fiji; also several large adze blades of stone and a drum from New Guinea. These specimens are all on exhibition in the Warren Gallery, which was opened to visitors during the past summer.

Dr. H. K. Faulkner (H. Med. Sch. 1885) and Dr. W. E. Faulkner (H. 1887, H. Med. Sch. 1891) of Keene, New Hampshire, have made an important addition to the African exhibit in the Museum. This ethnological material was obtained by a missionary, principally from among the Congo tribes, and was purchased by the Faulkner brothers, who have thus kindly remembered the University. It is a representative collection illustrating the native manufactures of the people, — their garments of grass cloth; their ornaments made of brass, for the neck, arms, and ankles; hair pins and combs; basketry, burden straps, pottery vessels, tobacco pipes; musical instruments, including guitars, drums, gongs, bells, and rattles; ceremonial objects and fetishes; agricultural implements; spears, war knives, and throwing knives, made of iron; walking sticks; canoe paddles; a model of a native house; and a large number of photographs of the natives, their houses, and burial places, and various natural objects illustrating the environment of the people. This collection is arranged in the Warren Gallery. The duplicates have been placed in the Students' Collection in the laboratory, where they will serve to illustrate the customs of the negroes of the Congo in connection with the lectures on the ethnology of Africa.

Through General Charles G. Loring, there has been received as a gift from Professor W. M. Flinders Petrie, thirteen pieces of pottery from the cemeteries of about 3000 B.C. at Ballas and Nagada; and seventeen pieces from El Kab, belonging to the IV, XII, and XVIII Dynasties. This little collection of the ruder forms of Egyptian pottery is very acceptable, as it furnishes specimens for comparison with early forms from other countries.

Mr. A. E. Douglass has given a small lot of implements and ornaments of bronze and stone, flint arrowheads and chips, and a number of potsherds, which he collected in the prehistoric ruins of Tiahuanaco on Lake Titicaca; several articles made of wool by the Indians of Peru; an awl made of the bone of a bird; two spear points of bone, a knife and awl of iron; a knife with a glass blade and a model of a canoe, all of native work and collected by him from the natives of Magellan Strait.

From Mr. Clarence B. Moore (H. 1873), who has the interests of the Museum constantly in mind, there have been received two more large urns with the two vessels covering them. Each urn contained burnt human bones. They were from a mound near Lake Bluff, Altamaha river, Georgia, and are described by Mr. Moore in his recent Memoir on the Mounds of Georgia. Mr. Moore has also given the skulls and some other bones of the skeletons of two dogs found in a mound on Callawassie Island, South Carolina. For twenty years the Curator has been collecting the bones of dogs found in connection with prehistoric burials in various parts of America. In this he has received the coöperation of Mr. Moore who has from time to time sent him the skulls and various bones of dogs found in Southern mounds. A study of the skulls of these dogs, from the mounds and burial places in Florida, Georgia, South Carolina, Ohio, Kentucky, New York, and from the great shell-heap at Damariscotta, Maine, shows that a distinct variety or species of dog was widely distributed over North America in pre-Columbian time. Apparently the same variety of dog is found at the ancient site of the Swiss Lake dwellers at Neufchatel, and also in the ancient tombs at Thebes in Egypt. This variety of dog is apparently identical with the pure bred Scotch Collie of to-day. If this is the case, the prehistoric dog in America, Europe, and Egypt, and its persistence to the present time as a thorough-bred, is suggestive of a distinct species of the genus *Canis* which was domesticated several thousand years ago, and also that the prehistoric dog in America was brought to the continent by very early immigrants from the Old World. Comparisons are yet to be made with the dog of the ancient Mexicans, and of the southwestern tribes, and also with the Eskimo dog.

Mr. Francis La Flesche has added to the collection illustrating the Sacred Pole and the ceremonies pertaining to it by the gift of the buffalo-skin robe worn by Smoked Yellow, the Omaha Keeper of

* Mr. Moore has printed a letter (written by the Curator) relating to the prehistoric dog of North America, in his Memoir on the Florida Coast Mounds, p. 26. Philadelphia, 1896.

the Pole, in the ceremony of anointing the pole about 1860. This robe was left by Smoked Yellow to the Head Priest of the Pebble Society, who wore the robe on ceremonial occasions. The robe was given to Mr. La Flesche by this Head Priest. Mr. La Flesche has also given a pair of Otoe moccasins.

Miss Alice C. Fletcher has given Omaha and Winnebago moccasins, and a war robe, made of a wolf's skin, which belonged to Little Chief, an Omaha. This robe was worn by Little Chief in battle about 1850.

Dr. Franz Boas has made a donation of a rabbit-skin robe, and a two-handled stone hammer for stake driving, collected by him among the Bella Coola Indians.

Mr. G. Byron Gordon has presented a bag and a water gourd used by the Indians of Honduras, also gourd cups from Guatemala.

From Messrs. B. T. B. Hyde and F. E. Hyde, Jr., there has been received a collection illustrating Navajo weaving and blanket making, which includes wool in its several stages of preparation, native dyes, and a loom on which is a partially woven blanket with the instruments used in weaving.

Mr. Charles P. Bowditch has added to the Mexican collection several pieces of ancient pottery from Jalisco of a type new to the collection; also an Indian bow and arrows from Mexico collected by Mr. W. B. Richardson.

From the city of Quincy the Museum has received an Indian's skull from Hough's Neck.

From Dr. W. Sturgis Bigelow (H. 1871), arrowheads, knives, gouges, and other stone implements from Nantucket; and a wooden mask representing a woman wearing a labret from British Columbia.

From Messrs. R. D. Jenks (H. 1897) and H. Jenks, chipped stone implements from St. Helena Island, South Carolina.

From Mr. A. W. Robinson, a collection of counterfeit stone implements of various forms.

From Mr. Abram T. Gamage, objects of pottery, bone, shell, and stone from the shell-heaps at Damariscotta, Maine; and gouges, celts, and pendants of stone from an ancient burial-place at Pemaquid Pond, Maine.

From Mrs. C. A. Cummings, three pottery figures from Mexico.

From Mr. George R. Frazer, several chipped stone implements from Lake Munroe, Florida.

From Miss Adele Breton, who continues to remember the Museum while travelling in Mexico, there have been received a stone metate, several scrapers of obsidian, and many small or fragmentary figures.

From Dr. C. C. Abbott, who from time to time sends additions to the large Abbott Collection from New Jersey, there have been received two stone scrapers found on his farm in Trenton. One of these is chipped from obsidian, and is the second piece of obsidian he has sent from Trenton. The finding of obsidian in New Jersey is suggestive of a route of migration from the west, of intertribal exchange, or of warfare.

From Dr. Ales Hrdlicka a series of human tibiae, and the casts of sections of tibiae arranged to illustrate his paper on the forms and classification of the tibiae of the white race.

From Dr. Henry O. Forbes, Director of the Liverpool Corporation Museums, the department of Instruction has received, as an exchange, the skeleton of a gorilla, which was much needed for the purposes of comparative study in the students' laboratory.

The American Museum of Natural History has sent, as an exchange, a model, one-sixteenth natural size, of the sculpture at Q'irigua, Guatemala, known as the "great turtle." This is an admirable and perfect model, made at the American Museum by Mr. Meyer from a full size cast of the sculpture.

The Library has received many serials in regular exchange for the Museum publications and a number of volumes and papers by gift,—in all 110 volumes and 104 pamphlets. The Library now contains 1,948 volumes and 2,583 pamphlets on anthropological subjects.

The principal gifts during the past year have been from the library of Professor J. D. Whitney, 25 important volumes; from Mr. C. P. Bowditch, several volumes and pamphlets; from the Duke of Loubat, the second part, completing the folio album, "*Galerie Americaine du Musée d'Ethnographie du Trocadero*." The volume contains 119 photographic plates of the principal archaeological and ethnological objects from America in the Paris Museum, with text by Dr. Hamy, the director of the Museum. This beautiful volume was published by the liberality of the donor. The Duke of Loubat has also given to the Museum one of the few copies of the fac-simile reproduction of the ancient Mexican manuscript known as the *Codex Borgiana* preserved in the library of the Vatican. It is a manuscript of 74 pages folded like a screen, each page of which has many figures in color. This is the second ancient manuscript which the Duke of Loubat has caused to be reproduced at his expense and of which he has given copies to various institutions. In the last report reference is made to the gift of a copy of the other manuscript—the *Codex Vaticanus*—from this patron of American research.

Dr. Frank Russell (H. 1896), the holder of the Hemenway Fellowship during the past year, gave such time as he could from his studies and his instruction in anthropology to cataloguing the osteological collection. At the close of the term he successfully passed his examination in the Division of American Archaeology and Ethnology and was given the degree of Ph.D. by the Faculty of Arts and Sciences. His thesis was "A Study of a Collection of Eskimo Crania from Labrador." The summer vacation was passed by Dr. Russell in a study of the Jicarilla Apaches of Arizona. Later he visited the Moki pueblo of Oraibi to witness the ceremonies attending the "Snake Dance." During his researches among the Apaches he collected for the Museum an interesting lot of objects illustrating the manufactures and customs of this tribe of Indians.

The income of the Huntington Frothingham Wolcott Fund for the year 1897-98 was used, by vote of the Faculty of the Museum, to pay in part the cost of the exploration of the ancient cemetery on the Ferris estate in Ohio, bequeathed to the Museum by the will of Miss Ferris. A notice of this bequest and of the exploration is given in the Curator's report of 1896-97. During the autumn and winter Mr. J. H. Swanton (H. 1896), holder of the Winthrop Scholarship, assisted for a time by Mr. Dixon, was engaged in assorting and studying the large collection obtained by this expedition. For the following five months he was engaged on the Hyde expedition of the American Museum of Natural History in the exploration of the ruins of the pueblo of Bonito in New Mexico. Returning in the autumn he entered Columbia University for the purpose of attending Dr. Boas' courses on Indian languages and ethnology during the present college year.

During the past summer Mr. R. B. Dixon (H. 1897) was an assistant on the Jesup Expedition in British Columbia, where he had the opportunity of studying the languages and customs of several Indian tribes. He returned to Cambridge at the opening of the present college year to continue his studies in this department of the Graduate School, and to prepare for the lectures he is to give as Assistant in Anthropology during the second half of the college year.

Mr. A. L. Dakin, a student assistant in the Museum, was making good progress in his studies when, at the outbreak of the war, being a member of the Concord company of the Sixth Regiment, he enlisted in the volunteers and went to Porto Rico with his regiment. He has returned home with his regiment and will soon resume his studies in the Museum.

Mr. C. C. Willoughby, Chief Assistant in the Museum, has given his time during the year to the arrangement of various collections, and to the cataloguing of the accessions and of such collections received in past years as could be brought into the rearrangement of certain exhibits now in progress. The cases in the lecture hall have been filled with the materials illustrating the various North American tribes, with the exception of those of the Northwest coast, the Eskimo, and the small collections from Mexico which are arranged in other halls and galleries. These specimens are now provided with printed labels and they furnish an instructive exhibit of Indian life. Many objects which have never been exhibited before are now shown in their proper connection; and the whole exhibit is arranged by tribes and families. Thanks to Mr. Willoughby's earnest and persistent labor, the Warren Ethnological Gallery, containing the collections from the Eastern and Western Eskimo, from Alaska and British Columbia, from the Pacific Islands, Australia, Asia, and Africa, was arranged, and the specimens in great part furnished with printed labels, in time to open the gallery to the public last summer. Several lots of specimens which have been stored for years in insect-proof tin boxes have been placed in this gallery.

Mr. Willoughby is now giving his time principally to the arrangement of the hall containing the important collections received from the Museum explorations in Central America and Mexico, with which will be incorporated the other specimens from that portion of America. During the absence of the Curator, Mr. Willoughby acts for him and has full charge of the Museum.

By an arrangement made with the Duke of Loubat, a series of the casts from the Museum moulds are being made for the American Museum of Natural History in New York. At the same time a number of casts are being made for the Museum of Science and Art in Philadelphia. In accordance with the proposition made in the last report of the Curator, the Museum will, through this assistance, make casts for the first time from many of the moulds secured by the expeditions to Copan. Mr. Gordon, under whose supervision many of the moulds were made in Copan, has been employed to supervise the work of making the casts.

Mr. E. E. Chick, after twenty years of service, resigned his position to take effect on September 1, 1898. Mr. Chick's valuable services, during these years, have been referred to in the annual reports of the Curator. He was always interested and efficient, and did much for the economical management of the building.

On August 26, the American Association for the Advancement of

Science was the guest of the University for the day, and nearly 1,000 members came from Boston, where the fiftieth anniversary of the Association was being celebrated. The Museum was visited by a large number of the members, among whom were many archaeologists and ethnologists. A meeting of the Anthropological Section was held at the Museum, when the Omaha Sacred Pole and its belongings formed the subject of an interesting paper ("The Ritual of the Sacred Pole") by Mr. La Flesche. The paper was further illustrated by graphophone records of songs by an aged Omaha who was the former keeper of the pole. As a compliment to the Association the Curator had prepared a "Guide to the Museum with a Statement relating to the Instruction in Anthropology," which was distributed to the members. This little pamphlet contains a brief history of the Museum, and makes mention of the collections in each room, calling attention to objects of special interest to the visitor.

Miss Fletcher, holder of the Thaw Fellowship, has been engaged in writing papers on different phases of Indian life as she has observed them during her close relations with the Indian in his daily life. Miss Fletcher was appointed by the Indian Bureau to represent the Bureau at the Omaha exposition, where she arranged a successful educational Indian exhibit. Later in the year she visited the Omaha tribe to gain further information on certain points needed for her records of the ethnology of the tribe.

Mrs. Zelia Nuttall, honorary assistant in Mexican archaeology, has continued her Mexican researches and has prepared, for publication by the Museum, the reproduction, with explanatory notes, of a Mexican pictographic manuscript with Spanish text. This manuscript is in the Florentine Library, where the work has been done by permission of the authorities of the library.

Miss Smith, in charge of the Library of the Museum, has continued the card catalogue by authors, and has assisted in cataloguing several collections in the Museum.

Miss Mead has continued in charge of the correspondence of the Museum as Secretary to the Curator.

Instruction in general anthropology and in American archaeology and ethnology was given in the Museum during the past college year, as mentioned in the last report of the Curator. For the year 1898-99 an additional course in advanced somatology is offered by Dr. Russell. Two half-courses have been added, one on somatology by Dr. Russell and one on Primitive Religions by Mr. Dixon and the Peabody Professor. The general course in anthropology is to be given by Dr. Russell. The Peabody Professor conducts the

advanced course in American archaeology and ethnology. There has been a decided increase in the number of students who have entered these courses during the present year.

From the balance of the gift of Mr. Robert C. Winthrop, Jr. (H. 1854), a long-needed movable case for the manuscript volumes of the catalogues of the Museum has been provided. This case is also furnished with drawers and a desk, so that it can be used in any room in the Museum for reference to the catalogues when arranging and labelling the specimens, and when making additions to the catalogues.

The gifts of money for various purposes during the year are as follows : —

SUBSCRIPTIONS THROUGH MR. CHARLES P. BOWDITCH.

Balance from former subscriptions	\$147.25
Estate of Mary Hemenway	500.00
Mrs. E. C. Ware	200.00
Miss Mary L. Ware	500.00
Stephen Salisbury	500.00
F. L. Higginson	200.00
Charles P. Bowditch	<u>2,869.06</u>
	\$4,916.31

EXPENDITURE OF THE MONEY THUS RECEIVED.

Instruction	\$175.00
Less repaid by Harvard College	<u>58.50</u>
Leaving balance of	\$116.50
Explorations	2,906.72
Publications to May, 1897	522.22
“ September, 1898	<u>1,370.87</u>
	\$4,916.31

SUBSCRIPTIONS THROUGH THE CURATOR.

Gift of Clarence B. Moore	\$500.00
“ Estate of Mary Hemenway	500.00
“ A. F. Esterbrook	<u>50.00</u>
	\$1,050.00

These amounts, received by the Curator, have been paid to the Treasurer. The account of the receipts and expenditures of the Peabody Museum are given in the Treasurer's report.

F. W. PUTNAM,
*Peabody Professor and Curator
of the Peabody Museum*

THE SEMITIC MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — In my last report reference was made to a valuable collection of Palestinian objects, and the hope was expressed that it might be secured for the University. This hope has been realized. A committee of the alumni of the Divinity School, aided by many contributors, have purchased the collection for the School, with the understanding that it is to be incorporated, so far as practicable, with the collections of the Museum. This new collection was brought together by Rev. Dr. Selah Merrill while he was acting as United States consul at Jerusalem. It contains Palestinian coins, glass vases, specimens of the fauna and the flora, geological specimens, and numerous objects illustrating ancient and modern life in Palestine. Of the birds some 150 are mounted, and there are about as many still unmounted. The mounted birds have been placed in the cabinet in the Divinity Faculty Room. It will be possible to place most of the other objects in the room now occupied by the Semitic Museum, though this will necessitate excessive crowding or the withdrawal of a part of the present exhibit. Such a condition illustrates anew the need of larger quarters.

The Museum has purchased two small bronzes with engravings in the Assyrian style. One is a hand mirror, and the central figure is a winged deity in human form standing on a mountain. In front of him is a worshiper, and above the worshiper the symbols of the sun and the new moon. The second engraving represents a seated figure (king or deity), in front of him a dog, above the dog the winged globe, the moon and the seven stars. Behind the dog are certain other objects, apparently two posts or columns on a mountain. While these engravings are clearly Assyrian in motive, the execution does not point to pure Assyrian workmanship. They may come from foreign artists overshadowed by Assyrian influence. If this be true, the objects have more than usual interest.

The only other purchase of the year is that of five Arabic manuscripts. Dr. John Orne has continued his work of studying and cataloguing the manuscripts belonging to the Museum.

By the kindness of the Director of the Boston Museum of Fine Arts, a dealer in oriental antiquities has placed on exhibition in that Museum a valuable collection of objects from Babylonia. It embraces several hundred written clay tablets and cones, about one hundred stone seal cylinders, and many other figures in terra-cotta and alabaster. The collection would be a most welcome addition to the Semitic Museum. We have about half the sum needed for its purchase, and it is hoped that friends of oriental study will help to make up the other half. The price asked is \$5,000.

In April last, the founder of the Semitic Museum and the Semitic Library added to his former benefactions the gift of \$5,000, to be divided between the Museum and the Library in such proportion as the needs of each might require. This generous gift is most welcome, and makes possible a very considerable increase in the resources of the Semitic Department.

D. G. LYON, *Curator*.

THE FOGG ART MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY :

SIR, — I have the honor to submit the following report on the Fogg Art Museum for the year 1897-98 :

No additions have been made to the collections of casts which, in the principal group, those representing Greek and Greco-Roman sculptures, is about as full as our space will allow ; and, in connection with our large collection of photographs, is practically full enough for our purposes. A few additions to the smaller collections illustrating Egyptian and Assyrian sculptures, and to those from Mediaeval sculptures, are desirable, and for such additions we still have some space.

Our resources this year have not been sufficient to enable us to make large additions to the collection of photographs. The total number received was 1,306 — which, added to the number (24,757) previously reported, makes the whole number in the collection to September 1, 26,063. The groups thus added to are: Greek sculpture (including a full set of illustrations of the Sidon Sarcophagi), Egyptian sculpture, Flemish, Dutch, and German painting, Mediaeval German architecture, Mediaeval and Renaissance English architecture, Italian and French architecture of the Middle Ages and the Renaissance, and 46 reproductions from the original drawings of Turner's *Liber Studiorum*.

To the collection of slides 359 additions have been made. The whole number of slides on September 1 was 1,528.

We have received by gift from Professor Norton 12 photographic negatives of Hieropolis, and from C. G. Loring, Esq., of Boston, a fine white figured Greek *lektythos*.

All photographs, drawings, and prints belonging to the Fine Arts Department, not constantly needed in the drawing room in Sever Hall, are permanently deposited in the Museum ; and to these two important additions were made during the past year — an original lead pencil drawing, a street scene in Ypres, by Samuel Prout, and a water color drawing, "Bird's Nest and Hawthorn Blossom," by William Hunt of the Old English Water Color Society. Both are admirable examples of the works of the respective masters.

To the Gray Collection of Engravings have been added by purchase a Crucifixion engraved on copper by Albert Dürer, and the

print Mars, Venus, and Cupid, also engraved on Copper, by Marc Antonio — also the yearly part of the *Kunsthistorischen Sammlungen des allerhöchsten Kaiserhauses*, to which the Gray Collection is a subscriber; and by gift from the author, Mr. Charles H. Middleton-Wake, a book entitled “The Invention of Printing,” and a “Catalogue of the Engraved work of Albert Dürer.”

The Gray Collection has been completely catalogued on sheets giving the names of the engravers represented, the country to which each belonged, the period at which he did his best work, the titles of all the prints by him in the collection, and the location of the prints in the storage cases. Where the engravings are after paintings the titles of the prints are entered alphabetically by the artists whose works they represent. Where we have prints representing two or more states of the same plate the different states are indicated; and in each case the kind of engraving — as burin work, etching, mezzotint, etc., is stated.

A card catalogue in two parts, made by Mr. Koehler, the former curator of the collection while it was in Boston, consists of an author index in which the names of engravers are arranged alphabetically in one series, and a case index, in which the engravers' names are arranged chronologically by countries. This serves as a guide to the sheet catalogue, and to the arrangement of the prints in the cases. The admirable scheme of this catalogue was devised by Mr. Koehler, and it has greatly facilitated the making of our own more complete catalogue; but considerable work had to be done upon it in changing the references to case locations from the Boston cases to our own.

In June last the Trustees of the Boston Museum of Fine Arts transferred to this Museum the John Witt Randall Collection of Engravings which had been bequeathed to Harvard College and temporarily deposited with them — as we then had no suitable place for its reception. This collection contains about 20,000 prints and drawings, among which are some of considerable importance. These added to the prints of the Gray Collection bring the whole number of prints in our Museum up to about 28,000, and form a working collection of wide range and great value. No accessions to the Randall Collection have yet been made since it came into our hands. The incomes from both the Gray and Randall funds having been extensively drawn upon of late it is thought best to make few additions to either of them for the present. Much work needs to be done on both collections (on the Randall collection a great deal must be done) in mounting, remounting, cleaning, and

cataloguing; and a part of each fund will have to be applied to the cost of this work for some time to come. The considerable extent, and chaotic condition of the Randall Collection when it came into Mr. Koehler's hands made it impossible for him, in addition to his other duties, to do more than make a general classification of its contents, and a list of the engravers represented. A catalogue of this collection similar to the one already made for the Gray Collection will have to be made; and when this is completed a series of subject lists, and process lists, must be made in order to enable us readily to bring together all of the material in both collections illustrating any particular class of subjects, or any kind of engraving.

During the year the Corporation decided that the will of Mrs. Fogg might be construed so as to allow us to turn over to the residuary legatees all objects (which had come into our hands with the Fogg Collection) that might be classed as furniture. This greatly relieved the overcrowded room devoted to the Fogg Collection. For the remaining objects, consisting of "paintings, articles of bric-à-brac, and Indian, Chinese and Japanese jewelry, curios, carvings, and other curiosities," suitable dust-proof cases enclosed with plate glass have been made. The small objects arranged in these cases, and the marble bust of Mr. Fogg, sufficiently fill the spaces on the four sides of the room, while the better paintings of the collection are hung upon the walls above.

The work of cataloguing the photographs has progressed more slowly than before. This is partly due to the difficulty which has been found in grouping, with approximate correctness, some classes of very ancient monuments and small objects, and also to the fact that my assistant who does this cataloguing was obliged to devote a large part of her time to assist in cataloguing the Gray Collection. Moreover a large number of photographs (which had long been in use by The Fine Arts Department before the Fogg Museum was established) had to be remounted, and the numbers and titles transferred from the old mounts to the new; and still further she has had to do the greater part of the work on the catalogue of slides which had been begun by a former assistant. This catalogue is now practically complete in respect to the number of slides now in our cases. In addition to a list of titles, with shelf numbers, this catalogue contains a small photographic print of each slide making it possible to select any that are needed for use without the necessity of going to the cases — which are located in the lecture room, and are therefore much of the time inaccessible. But with all of these difficulties and interruptions 2,296 new photographs were catalogued and arranged in the cases during the year.

The resort to the Museum during the day time has been very considerable, but the number of evening visitors has at no time been large. It has therefore been decided to discontinue the evening opening. The number of applications during the year, by members of the University and other persons, for access to photographs in the cases was 1,004, and of these 115 were made by evening visitors. We continue to loan photographs and slides to members of the University and, in some cases, to outsiders. Such loans have, during the past year, been made to the Classical, German, Semitic, and Architectural departments; and to Wellesley College and the Institute of Technology. The number of times these loans were made was of photographs 141, and of slides 23.

The number of applications, by students and others, for access to prints in the Gray Collection, not exposed in the exhibition cases, was 122. For the safe administration of the print collections the following rules have been made and are posted in the Print Room:

1. Visitors cannot be allowed to handle any engraving without special permission from the Director of the Museum, and then only in the presence and under the supervision of the Director or of one of his authorized assistants.
2. Persons wishing to copy any engraving may obtain permission to do so on application to the Director, who will cause the engraving, while thus in use, to be kept under glass.
3. No engraving shall be taken from the room especially devoted to the Print Collections.
4. Books in the reference library are accessible on application, but they must in no case be removed from the Print Room without special permission from the Director.
5. Notes must be taken with lead pencil only. Ink, whether in ordinary, stylographic, or fountain pens, must not be used in the Museum.

In order that we may know more exactly in future what kind of use is made of the print collections we propose to keep a visitors' book in which the name and address of each applicant shall be entered, together with a statement of the purpose for which he seeks access to the collections. Such a book was kept by Mr. Koehler while the collections were in his charge, and was found useful.

We propose, also, henceforth to keep a similar registration book for the collection of photographs.

While with our present limited resources we cannot hope to do more than to maintain a somewhat steady growth of the collection

of photographs, and to make some additions to the collections of prints. we must not lose sight of the fact that our Museum was founded "to be used for the collection and exhibition of works of art of every description"; and that while we do not need to gather here extensive miscellaneous collections, it is desirable that we should acquire a limited series of representative original works of the highest character in the various important branches of art. The photographs afford, indeed, a wide range of material illustrating works of art of all kinds. They form a collection of documents of the highest value to students of Archaeology and History as well as to students of the Fine Arts; but photographs alone are inadequate. We need some original examples to give the photographs their full value. The small collection of Greek vases which have been loaned to us by Mr. E. P. Warren '83 are the best of their kind, and are almost sufficient for our needs; and a series of about fifty ancient glass objects, of representative and high character, have recently been received on deposit, in the hope that some friend of the Museum may give us the means to acquire them. The price asked for this collection (which is admirably suited to our needs) is six hundred dollars. This collection is now on view in the room of coins and vases. Besides our needs in such directions we must keep steadily in view our urgent need of at least a few original paintings of the highest class, of the Italian, Flemish, and other important schools of art of past times. We ought to have a considerable fund for the building up of such a collection. An annual income of even a few thousand dollars would enable us to do something in this direction. Opportunities for such acquisitions are constantly arising, and it is to be hoped that our Museum may gradually be enriched with such things.

Our present available annual resources for additions are as follows: From the William Hayes Fogg endowment about \$2,000, but this must be used primarily toward conducting and maintaining the building. From the Gray Fund about \$675, to be used for the increase and maintenance of the Gray Collection of Engravings. From the John Witt Randall Fund about \$1,270, "to be used for the care and increase of the Randall collection, and for the interest of the department of engraving and the allied branches of the Fine Arts." From the William Mackay Prichard Fund about \$600, "the income only of said fund to be used to increase the Fine Arts collections of said College."

CHARLES H. MOORE, *Director.*

MINERALOGICAL MUSEUM AND LABORATORIES OF MINERALOGY AND PETROGRAPHY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — There have been no changes in the courses offered the past year nor in the personnel of the staff, Dr. Charles Palache continuing as Instructor in Mineralogy and Dr. Arthur S. Eakle as Assistant in Mineralogy and Petrography. The removal of the courses in Mining and Metallurgy to the Rotch Laboratory, now progressing, enables us to utilize much needed room for the Mineralogical Library and for the Chemical Laboratory in the basement, while the building is freed from whatever fire-risk may have attended the use of the assay furnaces.

Among the additions to the Mineralogical Museum may be mentioned a collection of 250 natural crystals, carefully selected and labelled to illustrate the systems of crystallography, which have been accumulating for some years and are now exhibited in a special case. Also a framed collection of 400 separate micro-photographs of snow crystals, made during twenty years by Mr. W. A. Bentley, of Nashville, Vermont, and striking for their size and perfection. We have acquired by purchase several superb calcite crystals from the Lake Superior copper mines and the loan of a large collection of the same calcites from Dr. Lucius L. Hubbard which are exhibited in adjacent cases. Twenty of the vacant cases in the gallery have been utilized for a synoptic collection illustrating the physical characteristics of minerals, such as color, cleavage, lustre, etc., and their genesis and mode of occurrence.

Large framed plans giving the distribution, number, and contents of each case have been hung on the main floor and gallery, while a copy of Dana's System of Mineralogy is placed in the room for more detailed information; this will be followed in time by the preparation of explanatory labels for each case. While preparing a brief account of the Museum for the "Guide to Harvard University" published for the meetings of scientific societies at Boston in 1898, the Curator has completed the outline of a more extended and detailed guide for the use of visitors, which it may be desirable at some future time to publish, and distribute to those interested, perhaps at a nominal price.

The following papers were published during the year : —

Erionite, a new Zeolite, by ARTHUR S. EAKLE. *Amer. Journ. Science*, June, 1898. Also in German in the *Zeitschrift für Krystallographie*, Vol. XXX, part 2. [This was based on material acquired by the Museum together with some magnificent opal specimens from Mr. E. Porter Emerson.]

Topaz crystals in the Mineral Collection of the U. S. National Museum ; ARTHUR S. EAKLE. *Proc. U. S. Nat. Mus.*, Vol. XXXI, 1898.

An occurrence of acid Pegmatyte in Diabase ; T. A. JAGGAR, JR. *Amer. Geologist*, Vol. XXI, April, 1898.

Contributions from the Harvard Mineralogical Museum : — I. Occurrence of Native copper at Franklin Furnace, N. J. II. Exhibition and preliminary description of a collection of micro-photographs of snow crystals made by W. A. Bentley. — J. E. WOLFF. *Proc. Am. Acad.*, Vol. XXIII, June, 1898. [Both of these papers are based on material acquired by the Museum.]

Dr. Palache has completed his monograph on the Lake Superior calcites, which is now in press. Dr. Eakle has finished the description and analysis of a peculiar dike rock from Beverly, is preparing a description of the rocks brought from the Fiji Islands by Mr. Agassiz, and is working up the petrography of the Middlesex Fells and the Blue Hills. The Curator has continued his work on the mines and geology of Franklin Furnace and in the southern part of the Green Mountains of Vermont.

JOHN E. WOLFF, *Curator*.

RADCLIFFE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to present my report on the condition of Radcliffe College during the academic year 1897–98.

The number of students in actual attendance during the year was 424, a gain of 54 over the preceding year.

Graduate Students	61
Seniors	43
Juniors	46
Sophomores	60
Freshmen	65
Special Students	149
Total	424

At the Commencement in June, 1898, forty-seven students, four of whom had completed their work in 1896–97 and had not been registered as Seniors in 1897–98, received the degree of Bachelor of Arts. Four of the forty-seven received the degree *summa cum laude*; sixteen received the degree *magna cum laude*; fourteen received the degree *cum laude*. Nine students received the degree of Master of Arts.

Examinations for admission were held, in June and July, 1898, in New York, Buffalo, Chicago, Cincinnati, Lawrenceville (N. J.), Pomfret (Conn.), Portland (Me.), Quincy, San Francisco, Springfield, St. Louis, Washington (Conn.), Washington (D. C.), Worcester, and Youngstown (O.), as well as in Cambridge. Three hundred and fifty-eight candidates presented themselves for examination; thirty-two were candidates for admission as special students; fifty-one candidates took part of the examination or made up admission conditions; one candidate was examined for advanced standing. One hundred and sixty-one took the Preliminary Examinations, and one hundred and thirteen the Final Examinations. The results of the Final Examinations are given in the following table: —

	Admitted.	Admitted "Clear."	Rejected.
June	93	37	8
September	9	1	3
Total	102	38	11
Total rejected	11		
	113		

One hundred and two candidates were admitted as Freshmen in 1898, as against eighty-eight in 1897.

Of the sixty-one Graduate Students registered during the year, forty were from other colleges than Radcliffe. Thirty-two students were admitted to eleven full courses, and eighteen students to eight half-courses of the "Courses primarily for Graduates in Harvard University open to competent students of Radcliffe College."

Sanskrit was taken	by one student.
Classical Philology was taken	by fifteen students.
Romance Philology was taken	by three students.
Philosophy was taken	by seven students.
History was taken	by four students.
Government was taken	by five students.
Mineralogy was taken	by one student.
Education and Teaching was taken	by fourteen students.

The number of courses offered in 1897-98 was 183, by 111 professors and instructors in Harvard University.

The members of the Academic Board for 1897-98 were: Professors Byerly (*Chairman*), Greenough, Mark, Wright, Macvane, B. O. Peirce, von Jagemann, Grandgent, and Kittredge; and the President and the Dean of Radcliffe College.

Radcliffe College Monograph No. 10 has just been published; it is the thesis on "On the Sources of Chaucer's *Nonne Prestes Tale*" by Kate O. Petersen, A.M., prepared under the direction of Professor George L. Kittredge and highly recommended by him.

The gifts of the year have been many and splendid; and we are delighted to report the erection of the first of our permanent buildings, the gift of Mrs. Augustus Hemenway, who gave us \$50,000 to build a Gymnasium, thereby doing for Radcliffe what Mr. Hemenway had already done for Harvard. Ground was broken in April, 1898, and the Gymnasium will be ready for use about the first of December. This first Radcliffe building is to serve as a model for the other buildings, soon, we hope, to follow, and the style of architecture was long and seriously considered. The result is a beautiful building, in the Colonial style, of red brick with white trimmings, containing a remarkably fine hall (96 × 50), an ample supply of baths, dressing-rooms, and locker-rooms, and, in the basement, a large swimming-pool (57½ × 20). The running expenses of a swimming-pool are great, and we must hope for another generous benefactor; the pool, however, will be completed without delay, as Miss Marian Hovey has given us for that purpose the sum of \$2,000, with accrued interest of \$160.34,

entrusted to her for some such use by the late Mrs. Mary Hem-enway. A similar sum of \$2,160.34 Miss Hovey has given us for the purchase of apparatus, and we remember with profound gratitude that the sending of these sums to our Treasurer was among the last acts of Miss Hovey's beneficent life.

We have to report the promise of a second building. An association of our graduates and former students, keenly feeling the need of a small dormitory, undertook to raise the money, and through the Chairman of the Committee, Miss Leslie W. Hopkinson, Mrs. David P. Kimball offered to give \$50,000 for a small hall of residence. The offer was most gratefully accepted, and the site and plans are now under consideration.

The graduates and former students have given another evidence of their lively interest in the College by completing the amount of \$5,000 needed to establish the "Harvard Annex Alumnae Scholarship."

Among the other gifts, bequests and legacies of the year are the following:

From the estate of Henry L. Pierce, \$20,000.

From the estate of Ellen M. Barr, \$52,619.66. Miss Barr was the head of a well-known school for girls in Boston, and she bequeathed to Radcliffe College the residue of her estate, accumulated in years of honorable and successful toil. Subject to the payment of an annuity, the income of this bequest is to be applied in the form of annual scholarships.

From the estate of Sarah Parker, \$2,134.23 additional, on account of her residuary bequest.

From James H. Hyde, \$100, for the purchase of French books for the Radcliffe Library.

From Marian C. Jackson and others, \$150, to defray the expense of a course of lectures on the Philosophy of the Kindergarten.

From subscribers to the Caroline I. Wilby Fund, \$30, additional, making the Fund \$3,060.

The sum total then of gifts and bequests actually received by the Treasurer during the year to July 31, 1898, is \$114,814.57.

In closing the record of this successful and prosperous year, I respectfully submit the following statement concerning Miss Ethel Dench Puffer. Miss Puffer (A.B. Smith Coll. 1891), was a graduate student in Radcliffe College during the year 1897-98; she worked principally in the laboratory of Professor Münsterberg, where she completed the research work begun under his direction in his laboratory in Freiburg, in 1896-97. Miss Puffer prepared a thesis

“On Symmetry,” a study of the aesthetic problems connected with symmetry, from the point of view of experimental psychology; this thesis was examined by Professor Münsterberg, Professor William James, and Assistant Professor Santayana, and was by them certified to be of distinguished merit. In May, 1898, the Committee on Honors and Higher Degrees of the Division of Philosophy in Harvard University gave Miss Puffer a long and searching oral examination “of the same nature as would have been given by the Division to a candidate for the degree of Doctor of Philosophy in Harvard University,” at the close of which examination it was voted to report to the Faculty of Arts and Sciences, that the Division had “unanimously found Miss Puffer unusually well qualified for that degree.”

AGNES IRWIN, *Dean.*

APPENDIX.

RESIGNATIONS.

- EDWARD WILLIAM HOOPER, member of the Committee on the Fogg Museum.
October 18, 1897.
- JOSEPH JAMES CURRY, Assistant in Pathology. November 1, 1897.
- CHARLES ELIOT NORTON, Professor of the History of Art, to take effect at the
end of the current academic year. November 29, 1898.
- ALLEN DANFORTH, Deputy Treasurer, to take effect February 11, 1898.
January 12, 1898.
- JOHN HUMPHREYS STORER, Curator of Coins in the College Library. February 28,
1898.
- ALEXANDER AGASSIZ, Director of the Museum of Comparative Zoölogy.
April 11, 1898.
- EDWARD WILLIAM HOOPER, Treasurer, to take effect July 31, 1898. May 18,
1898.
- JAMES MILLS PEIRCE, Dean of the Faculty of Arts and Sciences, to take effect
September 1, 1898. September 27, 1898.
- FRANK COLE BABBITT, Instructor in Greek, to take effect September 1, 1898.
September 27, 1898.
-

APPOINTMENTS.

[WITHOUT LIMIT OF TIME, OR FOR MORE THAN ONE YEAR.]

- ALLEN DANFORTH, to be Comptroller, from December 1, 1897. November 29, ,
1897.
- WILLIAM COOLIDGE LANE, to be Librarian. December 20, 1897.
- CHARLES ELIOT NORTON, to be Professor of the History of Art, Emeritus.
December 20, 1897.
- WILLIAM MORROW MCINNES, to be Assistant Bursar, from January 1, 1898.
January 3, 1898.
- BARRETT WENDELL, to be Professor of English. January 31, 1898.
- GEORGE SANTAYANA, to be Assistant Professor of Philosophy, for five years from
September 1, 1898. January 31, 1898.
- RUDOLPH BLASCHKA, to be Artist-naturalist to the Department of Botany.
January 31, 1898.
- MALCOLM STORER, to be Curator of Coins in the College Library. February 28,
1898.
- CHARLES POMEROY PARKER, to be Assistant Professor of Greek and Latin, for
five years from September 1, 1897. February 28, 1898.
- HANS CARL GÜNTHER VON JAGEMANN, to be Professor of Germanic Philology.
March 14, 1898.

- ALEXANDER AGASSIZ, to be Director of the Museum of Comparative Zoölogy, Emeritus. April 11, 1898.
- OLON IRVING BAILEY, to be Associate Professor of Astronomy, from February 1, 1898. April 11, 1898.
- WILLIAM TOWNSEND PORTER, to be Associate Professor of Physiology, from September 1, 1898. April 11, 1898.
- EDWARD HICKLING BRADFORD, to be Assistant Professor of Orthopedics, for five years from September 1, 1898. April 11, 1898.
- CHARLES FRANCIS ADAMS, 2d, to be Treasurer, to serve from July 31, 1898. May 18, 1898.
- EDWARD CUMMINGS, to be Assistant Professor of Sociology, for five years from September 1, 1898. May 18, 1898.
- CHARLES HENRY CONRAD WRIGHT, to be Instructor in French. May 18, 1898.
- EDWARD HENRY STROBEL, to be Bemis Professor of International Law. May 23, 1898.
- LIONEL SIMEON MARKS, to be Instructor in Mechanical Engineering, from September 1, 1898. May 23, 1898.
- CHARLES HARRINGTON, to be Assistant Professor of Hygiene, for five years from September 1, 1898. June 13, 1898.
- ALBERT ANDREW HOWARD, to be Assistant Professor of Latin, for five years from September 1, 1898. June 13, 1898.
- CLIFFORD HERSCHEL MOORE, to be Assistant Professor of Greek and Latin, for five years from September 1, 1898. June 13, 1898.
- JAMES HARDY ROPES, to be Assistant Professor of New Testament Criticism and Interpretation, for five years from September 1, 1898. June 13, 1898.
- WILLIAM FOGG OSGOOD, to be Assistant Professor of Mathematics, for five years from September 1, 1898. June 13, 1898.
- FRANZ PFAFF, to be Instructor in Pharmacology and Physiological Chemistry, from September 1, 1898. June 13, 1898.
- JOSEPH DODDRIDGE BRANNAN, to be Professor of Law. June 15, 1898.
- ARTHUR RICHMOND MARSH, to be Professor of Comparative Literature, from September 1, 1898. September 27, 1898.
- LANGDON FROTHINGHAM, to be Instructor in Pathology, for three years from September 1, 1898. September 27, 1898.

[FOR ONE YEAR OR LESS.]

For 1897-98.

- HANS REUSCH, to be Sturgis-Hooper Professor of Geology. October 4, 1897.
- FRANCIS DOHS, to be Instructor in Gymnastics. October 4, 1897.
- | | |
|--------------------------------------------|-----------------------------------------|
| FRANK HENRY GAZZOLO. Chemistry. | } To be Assistants.
October 4, 1897. |
| LAWRENCE JOSEPH HENDERSON. Chemistry. | |
| KENNETH LAMARTINE MARK. Chemistry. | |
| EDGAR WILLIAM OLIVE. Botany. | |
| ALVIN SAWYER WHEELER. Chemistry. | |
| MOSES HANNIBAL WRIGHT. Mechanical Drawing. | |
| FRANK ALBERT HIGGINS. Obstetrics. | |
- ARLO BATES, to be Lecturer on English. October 11, 1897.
- JAMES HENRY FISHER, to be Instructor in Engineering Contracts. October 11, 1898.

BURTIS BURR BREESE. Psychological Laboratory.	} To be Assistants. October 11, 1897.
ROLAND BURRAGE DIXON. Anthropology.	
GEORGE NEELY HENNING. French.	
ROSWELL HILL JOHNSON. Zoölogy.	
EMILE THEODORE LAMBERT. German.	
JOHN DANIEL LOGAN. Philosophy.	
CARL TROWBRIDGE ROBERTSON. Chemistry.	
FRANCIS HARDING WHITE. History.	
WILLIAM SARGENT BURRAGE, to be Instructor in Latin.	October 18, 1897.
WILLIAM WARREN BELL, to be Assistant in History.	October 18, 1897.
CHARLES WHITNEY MIXTER, to be Assistant in Political Economy.	October 18, 1897.
MARTIN MOWER, to be Assistant in Fine Arts.	October 18, 1897.
JOHN GEORGE JACK, to be Lecturer at the Arnold Arboretum, from January 1, 1897, to January 1, 1898.	October 25, 1897.
DONALD FRANK CAMPBELL, to be Instructor in Mathematics.	November 8, 1897.
ARTHUR BOWES FRIZELL, to be Instructor in Mathematics.	November 8, 1897.
GEORGE CARROLL CURTIS, to be Assistant in the Geographical Laboratory.	November 8, 1897.
CHARLES HENRY WHITE, to be Assistant in Geology.	November 8, 1897.
JOSEPH DANA ALLEN.	} To be Examination Proctors. November 8, 1897.
JOHN CHARLES STATES ANDREW.	
RAYMOND CLARE ARCHIBALD.	
BURTIS BURR BREESE.	
GUY STEVENS CALLENDER.	
WALTER BRADFORD CANNON.	
EDWARD HENRY COLPITTS.	
RALPH WALDO CONE.	
EDWIN RUST DOUGLAS.	
SIDNEY BRADSHAW FAY.	
CHARLES SUMNER GRIFFIN.	
FREDERICK ORVILLE GROVER.	
ROBERT WILLIAM HALL.	
HENRY BARRETT LEARNED.	
WILLIAM EDWARD McELFRESH.	
FREDERICK CHASE McLAUGHLIN.	
HERBERT CAMP MARSHALL.	
VERNON FREEMAN MARSTERS.	
WILLIAM JOSEPH MILLER.	
GEORGE THOMAS MOON.	
JOHN FREDERICK NEAL.	
GEORGE RAPALL NOYES.	
WILLIAM MAXWELL REED.	
HENRY LINDSAY SANFORD.	
CHARLES EDWARD SEAMAN.	
ALFRED DWIGHT SIEFFIELD.	
JAMES SULLIVAN, JR.	
FREDERICK CLAYTON WAITE.	
EDWARD HENRY WARREN.	
HARRY WHITE.	

- HENRY LEE. } To be Trustees of the Museum of Fine
 WILLIAM STURGIS BIGELOW. } Arts, from January 1, 1898 to Janu-
 ARTHUR ASTOR CAREY. } ary 1, 1899. November 29, 1897.
 BASIL LANNEAU GILDERSLEEVE, to be Lecturer on the Greek Comedy. Novem-
 ber 29, 1897.
 WALLACE MARTIN LINDSAY, to be Lecturer on Classical Philology. November
 29, 1897.
 CHARLES ERWIN PARKHURST, to be Instructor in Operative Dentistry. Novem-
 ber 29, 1897.
 WALTER HARRIS WHITE, to be Instructor in Operative Dentistry. November
 29, 1897.
 THOMAS FRANKLIN CURRIER. Cataloguing. }
 JAMES ALLEN BUTLER. Engineering. } To be Assistants.
 DANIEL FRANCIS CALHANE. Chemistry. } November 29, 1897.
 ALLERTON SEWARD CUSHMAN. Chemistry. }
 EDWARD SKINNER KING. Observatory. }
 LEWIS FERANDUS CRAWFORD. }
 FRANCIS ERASTUS HOLIDAY. } To be Proctors.
 JOHN FREDERICK NEAL. } November 29, 1897.
 EDWARD HENRY WARREN. }
 HARRIS EASTMAN SAWYER, to be Lecturer on the Chemistry of Fermentation.
 December 13, 1897.
 ERNEST BOYEN YOUNG, to be Assistant in Anatomy. December 13, 1897.
 CHARLES FRANCIS ADAMS, 2d, to be Deputy Treasurer, for four months.
 January 12, 1898.
 HENRY BARRETT HUNTINGTON, to be Assistant in Philosophy. January 31, 1898.
 HENRY BARRETT HUNTINGTON, to be a member of the Board of Examination
 Proctors. January 31, 1898.
 HEINRICH CONRAD BIERWIRTH, to be a member of the Administrative Board of
 the Lawrence Scientific School. March 28, 1898.

For 1898-99.

- JENS IVERSON WESTENGARD, to be Instructor in Criminal Law and Pleading.
 March 28, 1898.
 HENRY WALTON SWIFT, to be Lecturer on Sales. June 28, 1898.
 BENJAMIN IDE WHEELER, to be Ingersoll Lecturer on the Immortality of Man.
 April 25, 1898.
 EDWARD ROBINSON, to be Lecturer on Classical Archaeology. April 25, 1898.
 JENS IVERSON WESTENGARD, to be Instructor in Engineering Contracts and
 Specifications. April 25, 1898.
 FRANK LOWELL KENNEDY, to be Assistant in Mechanical Drawing and Descrip-
 tive Geometry. April 25, 1898.
 ABBOTT LAWRENCE LOWELL, to be Lecturer on Existing Political Systems. May
 18, 1898.
 MORTON ARNOLD ALDRICH. Political Economy }
 CHARLES HAMILTON ASHTON. Mathematics. } To be Instructors.
 IRVING BABBITT. French. } May 18, 1898.
 GREGORY PAUL BAXTER. Chemistry. }
 GEORGE WILLIS BOTSFORD. History of Greece }
 and Rome. }

CHARLES LEONARD BOUTON. Mathematics.
 ALPHONSE BRUN. French.
 GUY STEVENS CALLENDER. Political Economy.
 JOHN FIRMAN COAR. German.
 RICHARD COBB. English.
 JOHN CUMMINGS. Political Economy.
 REGINALD ALDWORTH DALY. Physiography.
 JEREMIAH DENIS MATTHIAS FORD. French.
 THOMAS HALL, Jr. English.
 JOHN GODDARD HART. English.
 WILLIAM GUILD HOWARD. German.
 THOMAS AUGUSTUS JAGGAR, Jr. Geology.
 ALPHONSE MARIN LA MESLÉE. French.
 ROBERT MACDOUGALL. Psychology.
 ELISHA WILSON MORSE. Natural History.
 EDGAR WILLIAM OLIVE. Botany.
 CHARLES PALACHE. Mineralogy and Petrography.
 BENJAMIN RAND. Philosophy.
 PIERRE LA ROSE. English.
 FRANK RUSSELL. Anthropology.
 FREDERICK HOLLISTER SAFFORD. Mathematics.
 WILLIAM HENRY SCHOFIELD. English.
 WALTER RAYMOND SPALDING. Music.
 JOHN PERCIVAL SYLVESTER. Chemistry.
 EDWARD HENRY WARREN. Political Economy.
 JAY BACKUS WOODWORTH. Geology.
 CHARLES LOWELL YOUNG. English.

To be Instructors.
 May 18, 1898.

OTIS FISHER BLACK. Chemistry.
 JOHN MASON BOUTWELL. Physiography.
 EDWIN HENRY COLPITTS. Physics.
 ROLAND BURRAGE DIXON. Anthropology.
 ARTHUR STARR EAKLE. Mineralogy and Petrography.

WINTHROP EDWARDS FISKE. Physics.
 ROBERT WARREN FULLER. Chemistry.
 HENRY BARRETT HUNTINGTON. English.
 GEORGE RICHARD LYMAN. Cryptogamic Botany.
 DANIEL GREGORY MASON. English.
 GUSTAVUS HOWARD MAYNADIER. English.
 GEORGE THOMAS MOORE. Cryptogamic Botany.
 MARTIN MOWER. Fine Arts.
 ALFRED DWIGHT SHEFFIELD. English.
 ALVIN SAWYER WHEELER. Chemistry.
 JOSEPH EDMUND WOODMAN. Geology.

To be Assistants.
 May 18, 1898.

WILLIAM VAUGHAN MOSES, to be Instructor in Mechanical Drawing and Machine Design. May 23, 1898.

JOHN WINTHROP DOW. Chemistry.
 MERRITT LYNDON FERNALD. Herbarium.
 FREDERIC HOUSTON KENT, to be Proctor. May 23, 1898.

To be Assistants. May 23, 1898.

IRA NELSON HOLLIS.	}	To be a Committee on the Regulation of Athletic Sports. June 13, 1898.
EDWARD HICKLING BRADFORD.		
EDWIN HERBERT HALL.		
JAMES JACKSON STORROW.		
GEORGE HARRIS.	}	To be Preachers to the University. June 13, 1898.
HENRY VAN DYKE.		
GEORGE HODGES.		
WILLIAM DEWITT HYDE.		
WILLIAM HERBERT PERRY FAUNCE.	}	AsAPH HALL, to be Lecturer on Celestial Mechanics. June 13, 1898.
ASAPH HALL, to be Lecturer on Celestial Mechanics.		
DONALD FRANK CAMPBELL. Mathematics.	}	To be Instructors. June 13, 1898.
WILLIAM ERNEST CASTLE. Anatomy and Embryology.		
ROBERT JAY FORSYTHE. Metallurgy and Metallurgical Chemistry.		
ARTHUR BOWES FRIZZELL. Mathematics.		
WILLIAM EDWARD MCCLINTOCK. Highway Engineering.		
HUGO RICHARD MEYER. Political Economy.		
HENRY LEE PRESCOTT. English.		
GEORGE STAPLES RICE. Sanitary Engineering.		
PRESCOTT ORDE SKINNER. Italian and Spanish.		
LEO WIENER. Slavic Languages.		
JOHN CHARLES STATES ANDREW. History.	}	To be Assistants. June 13, 1898.
WILFRED GEORGE GARNET COLE. Classics.		
PETER FRANDSEN. Zoölogy.		
ROBERT WILLIAM HALL. Zoölogy.		
ALBERT HITCHINGS NEWHALL. History.		
CHARLES WILLIAM PRENTISS. Zoölogy.		
HERBERT WILBUR RAND. Zoölogy.		
CHARLES EDWARD SEAMAN. Government.		
STEPHEN EDGAR WHITING. Electrical Engineering.		
STEPHEN RIGGS WILLIAMS. Zoölogy.		
MORTON ARNOLD ALDRICH.	}	To be Proctors. June 13, 1898.
JOHN CHARLES STATES ANDREW.		
GEORGE WYLLYS BENEDICT.		
HARRY AUGUSTUS BIGELOW.		
JOHN MASON BOUTWELL.		
WALTER BRADFORD CANNON.		
EDWIN HENRY COLPITTS.		
RALPH WALDO CONE.		
JOHN WELLS FARLEY.		
EUGENE ALLEN GILMORE.		
CHARLES SUMNER GRIFFIN.		
FREDERICK ORVILLE GROVER.		
FRANCIS ERASTUS HOLLIDAY.		
FRANK LOWELL KENNEDY.		
HENRY BARRETT LEARNED.		
GEORGE RICHARD LYMAN.		
WILLIAM EDWARD McELFRESH.		

DANIEL GREGORY MASON.	}	To be Proctors. June 13, 1898.
WILLIAM JOSEPH MILLER.		
GUY MURCHIE.		
JOHN FREDERICK NEAL.		
JAMES HORACE PATTEN.		
WILLIAM MAXWELL REED,		
CHARLES EDWARD SEAMAN.		
ALFRED DWIGHT SHEFFIELD.		
PRESCOTT ORDE SKINNER.		
HOLLIS WEBSTER.		
ALVIN SAWYER WHEELER.	}	To be Assistants. June 15, 1898.
SIDNEY RUSSELL WRIGHTINGTON.		
CHARLES HAMILTON AYRES. Physics.		
WILLIAM EDWARD McELFRESH. "		
WILLARD STREETER BASS. "		
LE BARON RUSSELL BRIGGS.		
JAMES BRADSTREET GREENOUGH.		
GEORGE ALONZO BARTLETT.		
FRÉDÉRIC CÉSAR DE SUMICHRAST.		
CHARLES POMEROY PARKER.		
EDWARD CHANNING.	}	To be Members of the Administrative Board of Harvard College. June 28, 1898.
HUGO CARL SCHILLING.		
CHARLES HALL GRANDGENT.		
WALLACE CLEMENT SABINE.		
LEWIS JEROME JOHNSON.		
ALFRED BULL NICHOLS.		
JOHN HAYES GARDINER.		
ARCHIBALD CARY COOLIDGE.		
BYRON SATTERLEE HURLBUT.		
ROBERT DECOURCY WARD.		
CHARLES BURTON GULICK.	}	To be Members of the Administrative Board of the Lawrence Scientific School. June 28, 1898.
NATHANIEL SOUTHGATE SHALER.		
IRA NELSON HOLLIS.		
HERBERT LANGFORD WARREN.		
HENRY LLOYD SMYTH.		
HEINRICH CONRAD BIERWIRTH		
JAMES LEE LOVE.		
JOSEPH TORREY.		
GEORGE WELLS FITZ.		
GEORGE HOWARD PARKER.		
COMFORT AVERY ADAMS.	}	To be Members of the Administrative Board of the Graduate School. September 27, 1898.
JOHN HENRY WRIGHT.		
CHARLES LORING JACKSON.		
JOHN WILLIAMS WHITE.		
WILLIAM ELWOOD BYERLY.		
BENJAMIN OSGOOD PEIRCE.		
HANS CARL GÜNTHER VON JAGEMANN.		
JOHN ELIOT WOLFF.		
ALBERT BUSHNELL HART.		
GEORGE LYMAN KITTREDGE.		
HUGO MÜNSTERBERG.		

FRANK COLE BABBITT. Greek.	}	To be Instructors. June 28, 1898.
ANDREW GARBUTT. Modelling.		
GEORGE FREDERICK NEWTON. Designing and Drawing.		
MARSHALL HENRY BAILEY. Physiology and Medical Visiting.	}	To be Assistants. June 28, 1898.
HARRY AUGUSTUS BIGELOW. International Law.		
WINFRED WAITE BRAMAN. Chemistry.		
ELLIOT HERSEY GOODWIN. History.		
FERNALD LESTER HANSON. History.		
OLIVER MITCHELL WENTWORTH SPRAGUE. Economics.		
WALTER DANA SWAN. Architecture.		
NORMAN MACLAREN TRENHOLME. History.	}	To be Instructors. June 13, 1898.
BERTRAM GORDON WATERS, to be a member of the Committee on the Regulation of Athletic Sports. September 27, 1898.		
WILLIAM CUNNINGHAM, to be Lecturer on Economic History. September 27, 1898.		
FREDERICK SHENSTONE WOODS, to be Lecturer on Mathematics. September 27, 1898.		
JESSE MORE GREENMAN, to be Assistant in the Herbarium. September 27, 1898.		
CHARLES SUMNER HAWES, to be Auditor of the Dining Association. September 27, 1898.		
FRANCIS DOHS, to be Instructor in Gymnastics. September 27, 1898.		
WILLIAM FENWICK HARRIS, to be Instructor in Greek. September 27, 1898.		
JAMES GRAY LATHROP, to be Instructor in Athletics. September 27, 1898.		
JOHN GEORGE JACK, to be Lecturer in the Arnold Arboretum, from January 1, 1898, to January 1, 1899. September 27, 1898.		
CYRUS GUERNSEY PRINGLE, to be Botanical Collector, from January 1, 1898, to January 1, 1899. January 31, 1898.		
SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene. June 13, 1898.		
CHARLES MONTRAVILLE GREENE, to be Secretary of the Medical Faculty. June 13, 1898.		
VINCENT YARDLEY BOWDITCH. Clinical Medicine.		
JOHN TEMPLETON BOWEN. Dermatology.		
EDWARD MARSHALL BUCKINGHAM. Diseases of Children.		
ELBRIDGE GERRY CUTLER. Theory and Practice of Physic.		
EDWIN WELLES DWIGHT. Legal Medicine.		
WILLIAM WHITWORTH GANNETT. Clinical Medicine.		
ELISHA HALL GREGORY. Histology and Embryology.		
GEORGE HAVEN. Gynaecology.		
HENRY JACKSON. Clinical Medicine.		
JOHN HILDRETH MCCOLLOM. Contagious Diseases.		
GEORGE HOWARD MONKS. Clinical Surgery.		
JOHN CUMMINGS MUNRO. Surgery.		

CHARLES ALLEN PORTER. Surgery.
 ABNER POST. Syphilis.
 HENRY PARKER QUINCY. Histology.
 EDWARD REYNOLDS. Obstetrics.
 GEORGE GRAY SEARS. Clinical Medicine.
 EDWARD WYLLYS TAYLOR. Neuropathology.
 BENJAMIN TENNEY. Anatomy.
 HERMAN FRANK VICKERY. Clinical Medicine.
 FRANCIS SEDGWICK WATSON. Genito-Urinary
 Surgery.
 CHARLES FRANCIS WITHINGTON. Clinical Medicine.
 JAMES HOMER WRIGHT. Pathology.

To be Instructors.
 June 13, 1898.

HENRY HARRIS AUBREY BEACH. Surgery.
 ALGERNON COOLIDGE, Jr. Laryngology.
 EDWARD COWLES. Mental Diseases.
 THOMAS AMORY DEBLOIS. Laryngology.
 JOHN WOODFORD FARLOW. Laryngology.
 GEORGE WASHINGTON GAY. Surgery.
 JOHN HOMANS. Diagnosis and Treatment of
 Ovarian Tumors.
 PHILIP COOMBS KNAPP. Diseases of the Nervous
 System.
 EDWARD BINNEY LANE. Mental Diseases.
 GEORGE LINCOLN WALTON. Diseases of the
 Nervous System.

To be Clinical Instructors.
 June 13, 1898.

EDWARD HALL NICHOLS. Surgical Pathology.
 ALFRED LUDWIG THEODOR SCHAPER. Histology
 and Embryology.

To be Demonstrators.
 June 13, 1898.

JOHN LINCOLN AMES. Histology.
 ALFRED WILLIAM BALCH. Pharmacology.
 JOHN BAPST BLAKE. Anatomy.
 FREDERICK EDWARD CHENEY. Ophthalmology.
 ALLEN CLEGHORN. Physiology.
 WILLIAM MERRITT CONANT. Clinical and Opera-
 tive Surgery.

JOHN NELSON COOLIDGE. Bacteriology.
 GEORGE ARTHUR CRAIGIN. Diseases of Children.
 EUGENE ANTHONY CROCKETT. Otology.
 EUGENE ABRAHAM DARLING. Bacteriology.
 EDWIN WELLES DWIGHT. Clinical Surgery.
 CARL ADOLPH EWALD. Physiological Chemistry.
 PHILIP HAMMOND. Otology.
 HENRY FOX HEWES. Chemistry.
 FRANK ALBERT HIGGINS. Obstetrics.
 EDWIN EVERETT JACK. Ophthalmology.
 JAMES OSCAR JORDAN. Materia Medica.
 ELLIOTT PROCTOR JOSLIN. Physiological Chem-
 istry.

To be Assistants.
 June 13, 1898.

HARRIS KENNEDY. Physiology.
 AUGUSTUS SMITH KNIGHT. Clinical Medicine.
 ROBERT GARDNER LORING. Anatomy.
 HOWARD AUGUSTUS LOTHROP. Anatomy.
 ROBERT WILLIAMSON LOVETT. Clinical Surgery.
 FRED BATES LUND. Anatomy.
 GEORGE BURGESS McGRATH. Pathology.
 ALBERT MATTHEWS. Physiology.
 SAMUEL JASON MIXTER. Operative Surgery.
 GEORGE HOWARD MONKS. Operative Surgery.
 JOHN LOVETT MORSE. Clinical Medicine.
 JAMES GREGORY MUMFORD. Clinical Surgery.
 FRANKLIN SPILMAN NEWELL. Obstetrics.
 EDWARD HALL NICHOLS. Pathology.
 JAY BERGEN OGDEN. Chemistry.
 CHARLES FAIRBANK PAINTER. Surgical Pathology.
 EDWARD REYNOLDS. Gynaecology.
 MARK WYMAN RICHARDSON. Pathology.
 CHARLES LOCKE SCUDDER. Clinical and Opera-
 tive Surgery.
 MYLES STANDISH. Ophthalmology.
 ARTHUR KINGSBURY STONE. Bacteriology.
 JOHN BAKER SWIFT. Gynaecology.
 PAUL THORNDIKE. Genito-Urinary and Clinical
 Surgery.
 ARTHUR HOWARD WENTWORTH. Pathology and
 Diseases of Children.
 CHARLES JAMES WHITE. Dermatology.
 FREDERICK ADAMS WOODS. Histology.
 ERNEST BOYEN YOUNG. Anatomy.

To be Assistants.

June 13, 1898.

DWIGHT MOSES CLAPP, to be Clinical Lecturer in Operative Dentistry. June
 15, 1898.
 GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology. June 15,
 1898.
 PATRICK WILLIAM MORIARTY, to be Instructor in the Mechanical Treatment of
 Fractured Jaws and Cleft Palate. June 15, 1898.
 EDWARD WYLLYS TAYLOR, to be Instructor in Neurology. June 15, 1898.
 NATHAN PRINDLE WYLLIE, to be Instructor in Materia Medica and Anaesthesia.
 June 15, 1898.

HARRY OLIVER BIXBY.
 ALLEN STANLEY BURNHAM.
 ASHER HARRIMAN ST. CLAIR CHASE.
 HAROLD DEWITT CROSS.
 ARTHUR WARREN ELDRED.
 HARRY WEST HALEY.
 THOMAS BERNARD HAYDEN.

To be Instructors in Mechanical
 Dentistry. June 15, 1898.

EDWIN CARTER BLAISDELL.
 WILLIAM ALLEN BROOKS.
 FREDERICK BRADLEY.
 FORREST GREENWOOD EDDY.
 CHARLES EDWIN PARKHURST.
 EZRA FLETCHER TAFT.
 FRANK TURNER TAYLOR.
 HENRY LAURISTON UPHAM.
 WALTER HARRIS WHITE.

To be Instructors in Operative
 Dentistry. June 15, 1898.

PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry.
 June 15, 1898.

JOSEPH TOTTEN PAUL, to be Demonstrator of Operative Dentistry. June 15,
 1898.

EDWARD LINWOOD FARRINGTON, to be Assistant Demonstrator of Operative
 Dentistry. June 15, 1898.

ROBERT JOHN McMEEKIN, to be Assistant Demonstrator of Mechanical Dentistry.
 June 15, 1898.

NEWTON SAMUEL BACON, to be Assistant in Chemistry. June 15, 1898.

WILLIAM ORISON UNDERWOOD, to be Lecturer on Warrant and Evidence.
 September 27, 1898.

LESTER HEARD HOWARD, to be Clinical Lecturer. September 27, 1898.

FRANK INGERSOLL PROCTOR, to be Instructor in Ophthalmology. September
 27, 1898.

JOHN LINCOLN AMES, to be Assistant in Histology. September 27, 1898.

JAY BERGEN OGDEN, to be Assistant in Chemistry. September 27, 1898.

ALBERT JAMES SHELDON, to be Instructor in Meat Inspection and Assistant
 Surgeon at the Hospital. September 27, 1898.

MINUTE ON THE CORPORATION RECORDS CONCERN- ING THE SERVICES AND GIFTS OF ALEXANDER AGASSIZ.

Voted, That in accepting from Mr. Alexander Agassiz the deed of gift which has been read, and which will be entered in full on the record of this date, the Corporation wish to enter on their records a statement of Mr. Agassiz's services and gifts to the Museum of Comparative Zoölogy:—

From 1860 to 1865 Mr. Agassiz was Agent of the Museum and Assistant in charge of Worms, Echinoderms, and Acalephs.

During part of the year 1866 he was in charge of the Museum while Professor Agassiz was absent in Brazil. In 1869 on his return from a three years' residence at Calumet, he was appointed Assistant in charge of Radiates but without salary. Early in 1874 he was made a member of the Faculty of the Museum, Curator, and a member of the Board of Trustees. In 1876 the Museum was transferred to the University by its Trustees. Mr. Agassiz has never received any salary as Curator.

Between September 1, 1871 and September 1, 1897, Mr. Agassiz expended for the benefit of the Museum from his private means, without making any communication on the subject to the President and Fellows over seven hundred and fifty thousand dollars, including his expenditures on objects now formally transferred to the Corporation beside contributing about fifty thousand dollars to other University objects in gifts known at the time to the President and Fellows.

The great sum expended for the Museum is divisible into the following items which are taken from Mr. Agassiz's private accounts: —

Land, Buildings, and Fixtures	\$219,007.00
Cases, Collections and care of same	223,867.00
Publications	118,127.00
Subscriptions to Agassiz Memorial Fund and for state grants (conditional)	65,000.00
Library	26,695.00
Salaries	27,051.00
Deficits Humboldt Fund (Students)	8,260.00
Fuel	7,807.00
Interest	9,568.00
Laboratory Supplies	3,100.00
Naples Table	1,473.00
Wood's Hole Fish Commission Tables	500.00
F. C. Gray Bust	355.00
Not analyzed; old accounts not accessible	41,008.28
	<u>\$751,818.28</u>

Of the total expenditure about \$107,000 was for current expenses or expenses which cannot now be specified; the remainder is represented to-day by important parts of the land, building funds, collections, cases, fixtures, publications, and library.

The Corporation record here their gratitude for these great gifts, distributed over a period of twenty-six years, and for devoted services rendered to the Museum in various capacities ever since 1860, with one interval of three years, 1866–1869.

STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1897
WHO RECEIVED DEGREES WITH DISTINCTION.

There were 143 such students: three of these were Graduate Students, and 18 others received their degrees at the end of three years of residence. Of these 143 students, 106 completed, during their residence as undergraduates in Harvard College, more than the required number of courses, exclusive of extra admission subjects, as follows:—

Number of Students.	Courses more than required.
18	$\frac{1}{2}$
22	1
12	$1\frac{1}{2}$
21	2
11	$2\frac{1}{2}$
12	3
1	$3\frac{1}{2}$
3	4
4	$4\frac{1}{2}$
1	5
0	$5\frac{1}{2}$
1	6
<hr/> 106	

STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1898
WHO RECEIVED DEGREES WITH DISTINCTION.

There were 132 such students: three of these were Graduate Students, and 22 others received their degrees at the end of three years of residence. Of these 132 students, 86 completed, during their residence as undergraduates in Harvard College, more than the required number of courses, exclusive of extra admission subjects, as follows:—

Number of Students.	Courses more than required.
14	$\frac{1}{2}$
18	1
10	$1\frac{1}{2}$
8	2
11	$2\frac{1}{2}$
8	3
4	$3\frac{1}{2}$
5	4
5	$4\frac{1}{2}$
0	5
0	$5\frac{1}{2}$
0	6
3	$6\frac{1}{2}$
<hr/> 86	

STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1897 WHO RECEIVED DEGREES WITH DISTINCTION.

1. Summa. 3½ extra courses.	2. Summa. 4 extra courses.	3. Magna. 4 extra courses.	4. Summa. 4 extra courses.	5. Cum. 4½ extra courses.
Semitic 1	English A	English AB	Greek D	Greek D
" 2	" B hf.	" B hf.	" 1	" E hf.
* " 3¹	" C hf.	" C hf.	" 6	" 2
" " 3² hf.	German 3 hf.	German A	Class. Phil. 38	" 3 hf.
" 4	" 4	" 1b	" " 52¹ hf.	Latin D
" 6 hf.	" 5	" 6	English AB	" E hf.
" 14 hf.	" A+	" 2	" C hf.	" 1
Greek C	Philosophy 1	French 1b	" 2	" 3 hf.
" E hf.	Gov't and Law 1¹ hf.	" 2	" 11¹ hf.	English A
" 1² hf.	Economics 1	Philosophy 1	" 11² hf.	" C hf.
English A	Fine Arts 3¹ hf.	Chemistry B	" 12	" 6 hf.
" C hf.	" " 3² hf.	" 1	" 14 hf.	" 10 hf.
" 22	" 4	" 3	" 23 hf.	" 22
German B (1½ cour.)	Mathematics B hf.	Botany 1² hf.	" 32¹ hf.	German A
" F hf.	" D hf.	" 2¹ hf.	German C	Philos. 1 (1½ cour.)
" 4	Physics C	" 3	" F hf.	" 3
French 1a	Chemistry 1	" 5	" 4	History 12¹ & 2
Philosophy 1	" 2	" 20a	" 5	" 13
" 2a hf.	" 3	Zoology 1 hf.	" 5	Gov't and Law 1¹ hf.
" 3	Botany 1² hf.	" 2² hf.	French A	" 4
" 4	" 2¹ hf.	" 3	" 1b	" 5
" 5	Zoology 1¹ hf.	" 4¹ hf.	" 3 hf.	" 10
" 20b hf.	" 2² hf.	" 5² hf.	" 4 hf.	Economics 1
History 6	Geology 1 hf.	" 11	History 1	" 3
Economics 3	" 2 hf.	Geology 4	" 12² hf.	Fine Arts 4
Zoology 1¹ hf.	" 4	" 8	Economics 1	Mathematics D hf.
	" 6² hf.	" 14 hf.	Mathematics F	" E hf.
	" 8	" S1 hf. (1894)	Physics B hf.	
	" 10			
	" 14 hf.			
	" 19¹ hf.			
	" 20 hf.			

* Extended throughout the year.

6. Magna. 4½ extra courses.	7. Magna. 4½ extra courses.	8. Magna. 4½ extra courses.	9. Summa. 5 extra courses.	10. Summa. 6 extra courses.
English A " B hf. " C hf. " 10 hf. " 30 hf. German A " E hf. " 1b " 3 " 5 French 1a " 4 hf. " 5 hf. " 6 " 7 Spanish 1 History 12 ¹ hf. " 12 ² hf. Gov't and Law 1 ¹ hf. " 4 Economics 1 " 6 ¹ hf. Mathematics A hf. " B hf. " D hf. " E hf. " 2 " 5 Physics B hf. " C Chemistry B (as ½)	Semitic 12 Latin B " 2 ¹ hf. English A " C hf. " C hf. German A " 2 " 2 " 6 hf. " 10 hf. " 22 German 1a " 3 " 5 French 1a " 2 " 6 History 1 " 7 " 10 " 12 ² hf. " 13 Gov't and Law 1 ¹ hf. Economics 1 Fine Arts 3 ¹ hf. Physics B hf. } (for cond.) } Chemistry 1 Zoology 1 ¹ hf. Hygiene 1 ² hf. * Took Eng. 2 twice.	Latin C English A " B hf. " C hf. German C hf. " 3 " 5 French 2 " 4 hf. " 6 Philos. 1 (1½ courses) " 5 History 1 " 7 " 9 " 10 " 12 ¹ hf. " 12 ² hf. " 13 Gov't and Law 1 ¹ hf. " 7 ² hf. Economics 1 Mathematics F Chemistry 2 " B (as ½) Geology 4	Greek D " E hf. " 2 " 3 hf. " 6 " 7 hf. " 8 " 10 Latin D " 1 " 3 hf. " 6 " 7 hf. " 8 " 10 " 12 English AB " 22 " 30 German 1c " 6 French 6 " 14 hf. Philosophy 1 Mathematics A hf. " C " E hf.	Greek D English AB " C hf. " 9 hf. " 22 German C Philosophy 1 " 2 " 2b ² hf. " 3 " 4 " 9 " 15 ¹ hf. " 20a (2½ cour.) AB " 20b (1½ cour.) B+A History 1 Economics 1 Fine Arts 4 Mathematics F Chemistry 2 Botany 1 ² hf. " 2 ¹ hf. Zoology 1 ¹ hf. " 2 ² hf. " 3 " 16 ¹ hf. Geology S 2 hf. B

STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1898 WHO RECEIVED DEGREES WITH DISTINCTION.

1. Magna cum. 3½ extra courses.	2. Summa cum. 3½ extra courses.	3. Cum. 3½ extra courses.	4. Cum. 3½ extra courses.	5. Summa cum. 4 extra courses.	6. Magna cum. 4 extra courses.
English <i>A</i>	Greek <i>C</i>	Greek <i>B</i>	Greek <i>A</i>	Semitic 1	Greek <i>B</i>
" <i>Chf.</i>	Latin <i>C</i>	Latin <i>C</i>	English <i>A</i>	Greek <i>A</i>	" <i>Ehf.</i>
" 2	" 1	English <i>A</i>	" <i>Chf.</i>	" <i>C</i>	Latin <i>B+</i>
German <i>Fhf.</i>	English <i>A</i>	" <i>Bhf.</i>	" 1	" <i>Ehf.</i>	" 1
" 2	" <i>Bhf.</i>	" <i>Chf.</i>	" 2	" 2	English <i>A</i>
" 3 <i>hf.</i>	" <i>Chf.</i>	" 3 <i>hf.</i>	" 3 <i>hf.</i>	" 8	" <i>Chf.</i>
French <i>1a</i>	" 2	" 7 <i>hf.</i>	" 5	Latin <i>D</i>	" 22
" 2c	German <i>A</i>	" 9 <i>hf.</i>	" 8 <i>hf.</i>	" <i>Ehf.</i>	German <i>A</i>
Italian 1	" <i>Fhf.</i>	" 28 <i>hf.</i>	" 11 <i>hf.</i>	" 1	" <i>Ehf.</i>
" 4	" 1a	German <i>Fhf.</i>	" 11 <i>hf.</i>	Class. Phil. 54	" <i>Ghf.</i>
Spanish 1	" 2	" <i>Fhf.</i>	" 22	English <i>A</i>	" 4
Philosophy 1 (1½)	French 1c	" <i>Ghf.</i>	German <i>C</i>	" <i>Chf.</i>	" 6 <i>hf.</i>
" 4	" 2a	" 1a	" 4	" 22	" 8
" 5	" 4 <i>hf.</i>	" 3	" 5	German 3	" 1c
" 6	" 6	" 5	French <i>A</i>	" 8	French 1c
" 7 <i>hf.</i>	" 7 <i>hf.</i>	" 10 <i>hf.</i>	History 1	Philosophy 1	" 6c
" 7 <i>hf.</i>	" 9	" 11 <i>hf.</i>	Fine Arts 1	" 12 <i>hf.</i>	Philosophy 1a
History 1	" 13	" 11 <i>hf.</i>	" 4	" 3	" 18 <i>hf.</i>
" 12 <i>hf.</i>	French 2c	French 2c	Music 1	" 4	History 1
" 13	Philosophy 1	Philosophy 1	" 8	" 8 <i>hf.</i>	Government 1 <i>hf.</i>
Government 1 <i>hf.</i>	Italian 1	" 16	Mathemat. <i>B² hf.</i>	" 9	Economics 1
Economics 1	Philosophy 1	History 1	" <i>D¹ hf.</i>	" 11 <i>hf.</i>	Mathemat. <i>A¹ hf.</i>
Fine Arts 4	" 1 <i>hf.</i>	" 10	Physics <i>C</i>	History 7	" <i>B² hf.</i>
Mathematics <i>F</i>	Fine Arts 4	" 122	Botany 12 <i>hf.</i>	Economics 1	" <i>E² hf.</i>
Physics <i>C</i>	Mathemat. <i>A¹ hf.</i>	" 13	Zoology 1 <i>hf.</i>	Fine Arts 3 <i>hf.</i>	Astronomy 1 <i>hf.</i>
Geology 4 <i>hf.</i>	" <i>D¹ hf.</i>	Government 1 <i>hf.</i>	Geology 4 <i>hf.</i>	" 32 <i>hf.</i>	Physics 1
	" <i>E² hf.</i>	Economics 1	" 52 <i>hf.</i>	"	Zoology 1 <i>hf.</i>
		Geology 3 <i>hf.</i>			Geology 4 <i>hf.</i>
		" 4 <i>hf.</i>			Hygiene 12 <i>hf.</i>
		Astronomy 1 <i>hf.</i>			

7. Magna cum. 4 extra courses.		8. Cum. 4 extra courses.		9. Magna cum. 4 extra courses.		10. Magna cum. 4½ extra courses.		11. Magna cum. 4½ extra courses.		12. Magna cum. 4½ extra courses.	
Greek <i>D</i>	A	English <i>A</i>	C	Greek <i>D</i>	A+	English <i>A</i>	B	Semitic 1	B	Greek <i>D</i>	C+
" 2	A+	" 6 hf.	B+	Latin <i>D</i>	B+	" <i>C</i> hf.	B	" 2	B	" <i>E</i> hf.	B
Latin <i>D</i>	B+	" 8 ¹ hf.	B	" 2	B	" 5	C+	" 3 ² hf.	A	Latin <i>C</i>	B—
" 1	B	" 8 ³ hf.	C	English <i>A</i>	B	" 6 hf.	B	" 4	B—	" <i>E</i> hf.	C+
English <i>A</i>	B	" 10 hf.	C	" <i>C</i> hf.	A	" 7 ¹ hf.	B—	" 6 hf.	B+	" 2 ² hf.	A
" <i>C</i> hf.	A	" 22	C	" 10 hf.	B	" 7 ² hf.	B	" 12	A	English <i>A</i>	B
" 8 ¹ hf.	B	" 30	B	" 22	C	" 9 hf.	B	" 13	B	" <i>C</i> hf.	B+
" 10 hf.	B	German <i>F</i> hf.	B	German <i>A</i>	A	" 10 hf.	B+	" 13 hf.	A	" 11 ¹ hf.	B+
" 22	C	" 2	B	" <i>E</i> hf.	A	" 11 ¹ hf.	B—	" 15	A	" 11 ² hf.	B—
German <i>C</i>	A—	" 7	C+	" 1b	A	" 11 ² hf.	A—	" 16	B	" 22	C
French 1a	B	" 10 hf.	B—	" 6	A	" 12 hf.	B+	" 16 hf.	A	German <i>A</i>	B+
" 6	B	French 1a	B	French 1c	B	" 15 ² hf.	B—	Greek <i>D</i>	B	" <i>E</i> hf.	B
Phil. 1 (1½ cour.)	B	" 2c	D	Philosophy 1	B+	" 22 hf.	B—	" 2	C+	" 1b	B
History 1	B	History 1	B—	History 1	A—	German <i>A</i>	B+	English <i>A</i>	B	" 4	A
" 10	B	" 11	B	" 8	B+	" 28 hf.	B+	" <i>B</i> hf.	C	French 1b	B+
" 12 ²	C	" 12 ¹ hf.	A	" 9	A—	" 1a	B—	" <i>C</i> hf.	C	History 1	B—
" 13	A—	" 12 ² hf.	A	" 12 ¹ hf.	A	French 1c	B	German 1a	C	" 10	A
Government 4	A—	" 13	B+	" 13	A	" 2c	B	" 7	C	" 12 ¹ hf.	B
" 7 ² hf.	B—	Government 1 ¹ hf.	A	" 13	A	" 6	B	French <i>A</i>	C	" 12 ² hf.	A—
Economics 1	B+	" 4	B	Government 1 ¹ hf.	A	" 14	B	Philosophy 1	B—	" 13	A
" 7 ¹ hf.	C	" 5	C+	" 4	B	Philosophy 1	C+	" 6 hf.	A—	Government 1 ¹ hf.	C
" 9	B	" 7 ² hf.	B+	Economics 1	A	" 16	B+	" 13 hf.	B+	" 4	C
Fine Arts 4	C+	Economics 1	B+	" 2	B	" 18 hf.	A—	History 1	C	" 7 ² hf.	B
Mathematics <i>C</i>	B	" 9	A	" 6	B	History 1	C	Economics 1	C	Economics 1	B
Milit. Sci. 1 ¹ hf.	B	" 14	B	Engineering 1b hf.	A	Government 1 ¹	B+	" 9	B+	Mathemat. <i>D</i> ¹ hf.	B
		" 15	C+	Geology 4 hf.	A	Economics 1	B—	Chemistry <i>B</i>	C+	" <i>E</i> ² hf.	D+
		Fine Arts 3 ¹ hf.	B			Fine Arts 4	B—			Engineering 1b hf.	B
		Geology S1 hf.	C			Geology 4 hf.	A			Physics <i>B</i> hf.	B
										Chemistry 1	B
										Hygiene 1 ² hf.	B

13. Magna cum. 4½ extra courses.	14. Magna cum. 4½ extra courses.	15. Summa cum. 6½ extra courses.	16. Magna cum. 6½ extra courses.	17. Summa cum. 6½ extra courses.
Latin B	Greek C	Greek D	Greek D	Greek D
English A	" Ehf.	" Ehf.	" Ehf.	Latin C
" B hf.	" 2	" 1 hf.	" 2	English A
" 6 hf.	" 3 hf.	" 2	" 3 hf.	" B hf.
" 10 hf.	" 10	" 3 hf.	" 6 hf.	" C hf.
" 30	Latin D	" 5 hf.	Latin D	German A
German B (1½ cour.)	" Ehf.	" 6	" Ehf.	" 1a
French 1a	" 1	" 7 hf.	" 1	" 3
Philos. 1 (1½ courses)	" 3 hf.	" 7 hf.	" 3 hf.	French 1a
History 1	" 8	" 8	" 6	" 2c
" 9	Latin D	Latin D	English A	Italian 1
" 10	" Ehf.	" Ehf.	" B hf.	Spanish 1
" 10 hf.	English A	" 1	" C hf.	Mathematics
" 12 hf.	" C hf.	" 3 hf.	German A	" D ¹ hf.
" 12 hf.	" 9 hf.	" 6	" 1a	" E ² hf.
" 13	" 7 hf.	" 7 hf.	" 2	" F
Government 1 ¹ hf.	" 22	" 8	French 1a	" 1 ² hf.
" 4	German B (1½ cour.)	" 9 hf.	" 2a	" 2
" 7 ² hf.	French 1a	" 10	" 3 hf.	" 3
Economics 1	Philosophy 1	English A	" 6	" 4
" 2	" 5	" B hf.	Philosophy 1a	" 5
" 5 hf.	" 16	" C hf.	" 16	" 6
" 6	History 1	German A	" 18 hf.	" 12 hf.
" 7 ² hf.	Government 1 ¹ hf.	" 1b	Economics 1	" 13
" 9	Mathematics F	" 4	Astronomy 1 ¹ hf.	Physics B hf.
Fine Arts 3	Engineering 2a hf.	" 6	Chemistry B	" C
Geology 4	Chemistry 1	French 2	" 1	Chemistry 1
	Geology 4 hf.	Italian 1	Botany 1 ² hf.	" 3
		Philosophy 1a	Zoology 1 ¹ hf.	
		Fine Arts 3 ² hf.	Geology 4 hf.	
		Engineering 2a hf.	" 5 ² hf.	
		Physics B hf.	Hygiene 1 ² hf.	

STATISTICS IN REGARD TO SCHOLARSHIP HOLDERS OF THE FIRST AND SECOND GROUPS (*THE SECOND GROUP INCLUDES HOLDERS OF SCHOLARSHIPS WITH STIPENDS ONLY*) ACCORDING TO THE CATALOGUE FOR 1897-98.

In Group I there were 36 scholars of whom 32 took, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomore.	Total.	Courses more than required.
2	0	0	2	$\frac{1}{2}$
2	2	1	5	1
1	0	1	2	$1\frac{1}{2}$
0	2	3	5	2
1	1	0	2	$2\frac{1}{2}$
1	0	2	3	3
2	2	0	4	$3\frac{1}{2}$
3	0	0	3	4
1	3	0	4	$4\frac{1}{2}$
0	0	0	0	5
0	0	0	0	$5\frac{1}{2}$
0	0	0	0	6
2	0	0	2	$6\frac{1}{2}$
—	—	—	—	—
15	10	7	32	

In Group II (holders of scholarships with stipends only) there were 71 scholars of whom 59 took, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomores.	Total.	Courses more than required.
3	0	9	12	$\frac{1}{2}$
6	1	7	14	1
1	3	1	5	$1\frac{1}{2}$
1	2	5	8	2
2	2	5	9	$2\frac{1}{2}$
4	2	0	6	3
0	2	0	2	$3\frac{1}{2}$
1	1	0	2	4
1	0	0	1	$4\frac{1}{2}$
0	0	0	0	5
—	—	—	—	—
19	13	27	59	

STATISTICS IN REGARD TO SCHOLARSHIP HOLDERS OF THE
FIRST AND SECOND GROUPS ACCORDING TO THE CATA-
LOGUE FOR 1898-99.

Number of students in Group I who, according to their present list of electives, will have taken at the end of the current academic year, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years respectively:—

Total number of First Group Scholars = 42.

Seniors.	Juniors.	Sophomores.	Total.	Courses more than required.
3	0	1	4	$\frac{1}{2}$
0	0	2	2	1
0	0	1	1	$1\frac{1}{2}$
2	1	1	4	2
1	2	8	11	$2\frac{1}{2}$
1	3	1	5	3
1	0	1	2	$3\frac{1}{2}$
2	2	0	4	4
2	2	0	4	$4\frac{1}{2}$
0	0	0	0	5
1	0	0	1	$5\frac{1}{2}$
0	0	0	0	6
0	0	0	0	$6\frac{1}{2}$
<hr/> 13	<hr/> 10	<hr/> 15	<hr/> 38	

[The remaining 4 students in the First Group did only the amount of work required.]

In Group II there are 138 scholars of whom 119* will, according to their present lists of electives, have taken at the end of the current academic year, exclusive of extra admission subjects, more than the prescribed work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomores.	Specials.	Total.	Courses more than required.
5	6	2	0	13	$\frac{1}{2}$
8	5	4	0	17	1
1	8	5	0	14	$1\frac{1}{2}$
8	5	4	0	17	2
9	3	9	0	21	$2\frac{1}{2}$
9	3	2	0	14	3
1	1	0	1	3	$3\frac{1}{2}$
5	2	0	1	8	4
3	0	0	0	3	$4\frac{1}{2}$
6	0	0	0	6	5
0	0	0	0	0	$5\frac{1}{2}$
1	0	0	0	1	6
<hr/> 1	<hr/> 1	<hr/> 0	<hr/> 0	<hr/> 2	<hr/> $6\frac{1}{2}$
57	34	26	2	119	

* Omitting one Sophomore who has elected twenty-two courses during a residence of several years as a Special Student.

DEED OF GIFT FROM ALEXANDER AGASSIZ TO THE
PRESIDENT AND FELLOWS.

I, Alexander Agassiz of Cambridge, in consideration of one dollar and other good and valuable considerations to me paid by the President and Fellows of Harvard College, the receipt whereof is hereby acknowledged, do hereby give, grant, and convey to the said President and Fellows the following described articles of personal property now belonging to me and contained in or used in connection with the Museum of Comparative Zoölogy, viz:—

Such collections as I have brought together on various expeditions to the West Indies, Central America, and in the Pacific.

The collections made by Mr. Garman and myself at Lake Titicaca.

The collection of Corals from the Great Barrier Reef of Australia made by Professor H. A. Ward.

The Zoölogical collection purchased from Professor Ward, the greater part of which are on exhibition in the Systematic and Faunal rooms.

The Osteological collections obtained from Messrs. Gerrard and Ward which are partly on exhibition and partly stored in the work-rooms.

My collection of Japanese Vertebrates and Invertebrates.

The collection of Casts and Models purchased from Messrs. Emerton, Damon, Fritsch, Kappeler, Cope, from the Royal Museum at Brussels, and others.

The collection of Blaschka Models of Marine Invertebrates.

The Microscopes and other Laboratory apparatus which I have at various times given to the Zoölogical and the Geological Departments.

The collections of fossil Invertebrates comprising the Day collection from the Niagara Limestone of Wisconsin, the Dyer collection of Invertebrates from Ohio, the Gebhard collection from Schoharie, the Taylor collection of fossil Cephalopods, the Terrell collection of fossil Fishes, the Walcott collection from the Trenton Limestone, as well as a number of smaller collections purchased from dealers in the United States.

The Schary collection of Silurian fossils, the Haeberlein collection of Jurassic fossils and a small collection of fossil Vertebrates obtained from Mr. Rossignol.

The collections of Western fossil Vertebrates made for me by Messrs. Garman, Sternberg, and others, as well as the collection of South American fossil Edentates, and the fossils purchased from Professor Ward.

All the copies remaining on hand of the Volumes of the Bulletin (Vols. IV to XXXII), and of the Memoirs (Vols. III to XXIII) of the Museum which I printed for the use of the Museum.

All the publications received in exchange for the Bulletins and Memoirs of the Museum, about 3,500 volumes now in the Museum Library (except those specifically reserved and deposited in my work-room) and the books which I have purchased during the past twenty years; about 5,000 volumes.

To Have And To Hold the premises to the said President and Fellows of Harvard College, their successors and assigns to their use forever.

Witness my hand and seal this thirty-first day of March, 1898.

(Signed) ALEXANDER AGASSIZ. (Seal)

CONDITIONS OF THE GIFT OF ALEXANDER AGASSIZ.

The conditions of the gift named by Mr. Agassiz are as follows: —

I will give to the President and Fellows of Harvard College for the use of the Museum of Comparative Zoölogy all the collections which I have at present deposited in the Museum or which I may acquire hereafter, as well as such books as are not for the present reserved for my use, on the following terms: —

Hoping hereafter to devote my time to explorations and to the publications of the Reports of these explorations in the Bulletin and Memoirs of the Museum, I ask

1. That the assistants of the Museum Library supervise as heretofore the distribution of these publications both to Societies and to individuals as I may direct.

2. That I be allowed to take from the exchanges for my use such books as I may select.

3. That the janitor and servants of the Museum continue to render to me such service as they were accustomed to give me while officially connected with the Museum.

4. That I be allowed to use the Museum Library, the greater part of which is my personal property, in the same manner as heretofore, and that such books as I may select and retain in my room be considered for the present my private property, subject to the same use as is now customary by the Officers and Students at the Museum.

5. That I be allowed to occupy the room where I now work, to continue the preparation of the Reports of the Albatross Expedition and of such expeditions as I may hereafter undertake.

6. That the Museum continue to pay the salary of my Secretary and that her services be at my disposal as they have been in the past, either during my residence at Cambridge or at Newport or during my absences from Cambridge.

7. That my artists be allowed to occupy the rooms they now use or some other equally convenient place to prepare the illustrations for the above mentioned Reports.

8. That I be allowed to continue the arrangement now existing between myself and Messrs. W. McM. Woodworth and A. G. Mayer or their successors, by which they may devote such time as they do not give to the Museum to the interests of my explorations either at the Museum or as assistants during my explorations.

That any assistants I may find it necessary to employ on the case of the collections made during my expeditions or on the preparations of the material for publication be assigned suitable quarters in the Museum building.

9. That I be allowed to store the outfit used on my expeditions in the Basement of the Museum.

Upon receiving from the Corporation notice of their acceptance of the above conditions I will execute a deed of gift covering the collections and books referred to in this letter.

(Signed) ALEXANDER AGASSIZ.

TABLE I.

ILLNESS REPORT, 1897-98.

Diseases.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
Colds, etc.	44	84	69	99	65	132	94	65	3	655
Scarlet Fever . . . . .	..	..	..	..	1	1	..	..	..	2
Diphtheria . . . . .	..	1	2	..	..	1	1	..	..	5
Typhoid Fever	3	2	..	1	..	1	..	..	..	7
Measles . . . . .	..	1	..	8	4	1	4	1	..	19
Mumps . . . . .	..	..	4	2	4	50	34	1	..	95
Headache	3	10	9	6	4	8	7	4	..	51
Overwork	1	4	3	1	3	4	1	..	1	18
Injuries	15	15	8	10	8	15	11	18	2	102
"At Home,"	4	3	..	..	11	3	2	4	..	27
Miscellaneous *	57	79	80	64	57	121	61	68	8	595
Total	127	199	175	191	157	337	215	161	14	1576
Cases carried over from preceding month . . . .	..	32	41	72	31	64	111	47	5	403
Number days illness . . .	598	1061	1325	1174	1472	2337	3116	976	47	
Average days confinement .	4.7	4.6	6.1	4.5	7.8	5.8	9.5	4.7	2.5	
Av. number ill at one time .	19.3	35.4	57.6	40.5	52.6	75.4	129.8	31.5	1.6	
Maximum number ill at one time over three days . .	31	43	72	46	74	121	132	39	4	
No. who went home	44	53	52	46	67	129	72	62	3	
No. who stayed in C. . . .	83	146	123	145	90	208	143	99	11	
No. non-contagious cases in C.	82	146	120	137	84	196	119	95	11	
No. contagious cases in C. .	1	..	3	8	6	12	24	4	..	
Av. number ill at one time in C.	12.6	22.4	32.6	22.5	25.1	38.9	56.6	15.0	.9	
Max. number ill at one time in C. over three days . .	17	27	42	23	32	45	46	12	2	
Visits to students in rooms										1128
Calls at rooms, students out										206
Consultations at L. S. S.										1240

* Appendicitis, Malaria, Neuralgia, Rheumatism, Vaccination, affections of the Eye, Heart, Stomach and Intestines (except Typhoid Fever), etc.

TABLE II.

CASES OF ILLNESS FOR THE YEARS 1894-5, 1895-6, 1896-7, AND 1897-8.

Diseases.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total
Colds, etc.: . 1894-5	2	69	107	63	172	206	226	99	96	3	1043
1895-6	..	92	110	118	141	172	215	93	62	2	1005
1896-7	..	79	97	117	106	132	193	134	69	4	931
1897-8	..	44	84	69	99	65	132	94	65	3	655
Scarlet Fever: 1894-5	2	..	..	..	7	3	12
1895-6	1	..	1	..	..	..	..	..	2
1896-7	1	..	2	1	..	4
1897-8	1	1	..	..	..	2
Diphtheria: . . 1894-5	2	..	1	..	..	..	3
1895-6	..	1	..	..	..	1	1	..	..	..	3
1896-7	2	..	..	..	..	..	..	2
1897-8	1	2	..	..	1	1	..	..	5
Typhoid Fev.: 1894-5	..	3	3	..	1	..	..	..	..	..	7
1895-6	..	3	..	1	1	1	..	1	1	..	8
1896-7	..	6	2	..	1	..	..	..	..	..	9
1897-8	..	3	2	..	1	..	1	..	..	..	7
Measles: . . . 1894-5	2	17	2	..	21
1895-6	1	1	4	5	6	1	3	21
1896-7	..	2	2	1	4	11	5	6	15	1	47
1897-8	1	..	8	4	1	4	1	..	19
Mumps: . . . 1894-5	2	28	25	9	1	65
1895-6	4	5	8	3	..	20
1896-7	1	..	1	1	1	4	3	11
1897-8	4	2	4	50	34	1	..	95
Headache: . . 1894-5	..	9	11	7	16	7	18	11	11	..	90
1895-6	..	8	14	20	15	15	17	13	15	..	117
1896-7	..	5	17	8	16	12	15	5	10	..	88
1897-8	..	3	10	9	6	4	8	7	4	..	51
Overwork: . . 1894-5	1	4	2	1	1	..	..	..	9
1895-6	..	4	5	..	..	6	4	7	1	1	28
1896-7	..	2	2	1	2	4	4	3	1	..	19
1897-8	..	1	4	3	1	3	4	1	..	1	18
Injuries: . . . 1894-5	..	10	9	2	12	5	9	14	17	..	78
1895-6	..	36	20	17	17	16	12	20	18	2	158
1896-7	..	18	25	8	11	13	9	11	7	2	104
1897-8	..	15	15	8	10	8	15	11	18	2	102
"At Home": 1894-5	3	48	30	35	44	53	48	37	8	..	306
1895-6	..	10	11	10	13	15	13	4	..	..	76
1896-7	..	7	9	10	6	8	10	10	4	4	68
1897-8	..	4	3	..	..	11	3	2	4	..	27
Miscellaneous: 1894-5	..	64	62	35	46	67	86	81	91	3	535
1895-6	1	110	165	108	81	135	155	85	79	1	920
1896-7	..	72	108	95	74	52	123	118	83	10	735
1897-8	..	57	79	80	64	57	121	61	68	8	595
TOTALS: . . . 1893-4	..	49	98	133	119	54	144	57	31	..	685
1894-5	5	203	223	146	297	341	419	284	241	10	2169
1895-6	1	264	326	275	270	369	427	237	180	9	2358
1896-7	..	191	262	243	220	234	360	290	194	24	2018
1897-8	..	127	199	175	191	157	337	215	161	14	1576

TABLE III.

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
Number days illness :										
1894-95	23	1401	1372	1201	1591	1303	2506	1935	1062	4
1895-96	2	1112	1982	1958	1654	2408	2975	2124	1139	45
1896-97 . . . . .	..	966	1906	1619	1265	1999	2780	1833	1419	86
1897-98 . . . . .	..	598	1061	1325	1174	1472	2337	3116	976	47
Average days confinement :										
1894-95	4.6	6.9	6.1	8.2	5.2	3.7	5.6	6.7	4.4	4.
1895-96	1.0	4.2	6.1	7.1	6.1	6.6	6.9	8.9	6.3	5.
1896-97 . . . . .	..	5.1	6.3	5.6	4.5	7.8	5.8	5.1	6.4	1.6
1897-98 . . . . .	..	4.7	4.6	6.1	4.5	7.8	5.8	9.5	4.7	2.5
Number non-contagious diseases in Cambridge :										
1884-95	1	170	199	107	212	260	304	175	200	8
1895-96	1	213	272	284	221	263	338	174	151	5
1896-97 . . . . .	..	145	218	219	205	165	347	218	120	30
1897-98 . . . . .	..	82	146	120	137	84	196	119	95	11
Number contagious diseases in Cambridge :										
1894-95 . . . . .	..	..	..	..	2	..	16	26	7	4
1895-96 . . . . .	..	..	..	..	..	4	5	4	55	2
1896-97 . . . . .	..	3	..	2	2	5	3	2	10	4
1897-98 . . . . .	..	1	..	3	8	6	12	24	4	..
Average number ill at one time in Cambridge :										
1894-95	1.	37.8	40.5	38.3	38.6	37.1	62.8	62.6	30.4	5.
1895-96	1.	28.9	55.1	69.4	45.2	60.2	77.2	66.6	32.9	1.3
1896-97 . . . . .	..	24.3	46.3	53.6	31.1	47.2	65.9	46.6	22.8	1.9
1897-98 . . . . .	..	12.6	22.4	32.6	22.5	25.1	38.9	56.6	15.0	.9
Maximum number ill at one time in Cambridge over three days :										
1894-95 . . . . .	..	..	..	..	..	..	..	..	..	..
1895-96 . . . . .	..	38	48	48	47	64	66	55	41	21
1896-97 . . . . .	..	30	39	46	33	73	72	57	26	16
1897-98 . . . . .	..	17	27	42	23	32	45	46	12	2
Visits to students in rooms :	Calls at rooms, students out :				Consultations at L. S. S. :					
1894-95 . . . 660	1894-95 . . . 300				1894-95 . . . 600					
1895-96 . . . 780	1895-96 . . . 180				1895-96 . . . 800					
1896-97 . . . 1159	1896-97 . . . 216				1896-97 . . . 1047					
1897-98 . . . 1128	1897-98 . . . 206				1897-98 . . . 1240					
“At Home” :					Total cases of illness :					
1894-95 306					1894-95 2169					
1895-96 76					1895-96 2358					
1896-97 68					1896-97 2018					
1897-98 27					1887-98 1576					

MEDICAL VISITATION.

HARVARD UNIVERSITY, CAMBRIDGE, Oct. 1897.

Students who are confined to their rooms by illness should send reports to the office (University Hall) before 10 A.M. They will then be visited before one o'clock. The nature of the illness and the degree of urgency should be stated, also the number of the room in the building. Reports requiring immediate attention should be sent by a messenger and not by mail.


CONSULTATION.—The Medical Visitor may be consulted as follows:

8.45–9 A.M. Physiological Laboratory, L.S.S., East wing (daily except Sunday).

4–5 P.M. L.S.S. (except Saturday and Sunday).

Saturday 12.45–1.15 P.M., L.S.S.

Sunday 9.30–10 A.M., 7 Scott St.

 Students able to go out are expected to utilize the regular consultation hours.

EMERGENCIES.—After 8 A.M. and before 5.30 P.M., L.S.S.

It should be remembered that chills and headache suggest fever, and that one who has fever usually feels better in the morning, but worse again at night. It is well to consult or report early, for it may lead to the detection of serious or contagious illness, and permit favorable arrangements to be made as to nursing, meals, going home, etc. Any *rash* or *eruption* should be *immediately reported*. The services of the Medical Visitor are gratuitous, and are for the benefit and protection of the student community.

The Regulations require students to report at the Office when they resume work.

MODIFIED SCHEME FOR CARRYING ON THE DINING HALL ASSOCIATION IN MEMORIAL HALL.

Adopted by the Corporation April 25th, 1898.

1. All persons connected with the University who board at the Dining Hall shall constitute an Association.

2. The officers of the Association shall be a President and ten Directors, six chosen at large from Harvard College and the Lawrence Scientific School taken together, two from the Law School, one from the Graduate School, and one from the Divinity School.

3. The President shall be chosen by the Association at large, the Directors by the several bodies of members mentioned in the preceding section. The officers shall be elected for one year; but shall continue to perform their duties until their successors are chosen. Vacancies occurring during the year shall be filled by similar elections for the unexpired part of the year.

4. There shall be two elections each year, — the first in February shortly after the mid-year examinations, at which election there shall be chosen the President, three Directors from the College and Scientific School taken together, one Director from the Law School, and one Director from the Divinity School. The President shall be elected during the first week after the mid-year examinations, and the Directors during the week following. The second election shall be held during the second week in June, when there shall be chosen three Directors from the College and Scientific School taken together, one Director from the Law School, and one Director from the Graduate School.

5. The President and Directors shall regulate the diet of the Hall, preserve order and exercise a general control over the expenditures of the Association subject only to the restrictions laid down in this Scheme; they shall have power to suspend or expel from the Association persons who are guilty of disorderly conduct, and to fix the rate of payment that shall be charged to suspended persons during the time of suspension.

6. The following rules are to be observed: —

(1) No wine, beer or other alcoholic drink, and no tobacco shall be used in the Hall.

(2) The hours for breakfast, luncheon and dinner shall be regulated according to the Tabular View of the College.

(3) No alcohol, naphtha, benzine, kerosene, or other inflammable liquid shall be used or kept within the building.

(4) No newspapers or magazines shall be sold in any part of Memorial Hall, except within the Dining Hall.

(5) No changes in the disposition of pictures, busts, or other decorations of the Hall, or in the architectural features of the Hall itself, or in the apparatus for heating or lighting, shall be made without the previous consent of the Corporation.

7. The Association shall keep the furniture and equipment good, shall pay six per cent. a year upon the advances made by the Corporation to furnish the kitchen and Hall, and \$1,500 a year toward extinguishing that debt.

8. The Corporation will appoint an Auditor, whose duty it shall be to examine and approve all bills for supplies and service; to satisfy himself, either by his own observation or by that of an assistant employed by the President and Directors, that all goods charged to the Association have been delivered; to keep the weekly list of persons boarding at the Hall;

and the account of allowances for absence; and, in general, to supervise purchases and expenditures, and see that the affairs of the Hall are conducted with economy and precision. The Auditor shall also act as Secretary of the Board of Directors and shall make to them a monthly report of the receipts and expenditures of the Association. His salary shall be fixed by the President and Directors.

The Corporation will appoint a Steward, who shall make all purchases of provisions for the Association, and order all urgent repairs, and shall also employ and direct the servants, and in general shall carry on the Hall. The Steward shall receive a fixed salary of \$1,500 a year, and in addition two and a half cents each week for every person who boarded that week at the Hall, if board should cost not more than \$4 a week (including all charges except this head-money); but this head-money shall be diminished by half a cent for every ten cents increase in the price per week or fraction thereof, if board should cost more than \$4. This rate of compensation shall begin with the year 1898-99. He shall receive no other compensation, commission, allowance, or perquisite whatever; but shall account for all sums which may in any way come into his hands as Steward of the Hall.

The Auditor and the Steward may be dismissed on reasonable notice by the Corporation, and shall be dismissed by them on reasonable notice at the request of two thirds of the officers of the Association.

9. The Corporation will advance from week to week the money to pay the bills of the Association for heating, lighting, service, provisions, etc.; but all such bills shall be approved by the Auditor. The interest on these advances shall be at the rate of six per cent. a year. The whole cost of carrying on the Hall, including the above mentioned charges for advances, shall be assessed by the officers of the Association upon the members thereof, and the amounts thus assessed upon the several members shall be certified by the Auditor, and collected upon the term bills by the Bursar.

10. The Corporation reserve to themselves the power of making from time to time such alterations in this Scheme as may seem to them calculated to promote the success of the Hall upon notice to the President and Directors of not less than one month.

Boston, Mass., November 8, 1898.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE: —

GENTLEMEN, — I submit for your consideration the following statement concerning Mr. Hooper's trusteeship.

He was chosen treasurer April 12, 1876, was confirmed by the Overseers April 21, 1876, and entered at once upon the duties of the office.

The number of funds and balances in the Treasurer's books was Their amount was	April 22, 1876. 162 \$3,139,217.99	July 31, 1898. 394 \$10,230,960.12	Increase. 232 \$7,091,742.13
	1875-76. \$496,828.58	1897-98. \$1,173,952.53	Increase. \$677,123.95
The whole income of the University, excluding all gifts for capital and for immediate use, was	General Investments. \$212,531.60	Special Investments. \$60,041.08	Total. \$272,572.68
The net gains on all sales of property, April 22, 1876, to July 31, 1898, were The net gains on all sales of property bought by Mr. Hooper (included in the "gain on all sales" in the preceding items) were	151,298.60	16,911.03	168,209.63
No valuation of special investments held September 1, 1876, was then made.			
The amount of property belonging to general investments was, after the Webb Estate dividend, on September 1, 1876, The amount of property belonging to general investments July 31, 1898, was	Book Valuation. \$2,254,089.50 8,425,361.05	Estim. cash value. \$2,365,791.46 9,791,104.34	Surplus. \$111,701.96 1,365,803.29
	. . . . . . . . . . . . . . . . . . . .	. . . . . . . . . . . . . . . . . . . .	\$1,365,803.29 111,701.96 \$1,254,101.33
Estimated surplus, July 31, 1898, as above Estimated surplus, September 1, 1876, as above Approximate increase between September 1, 1876, and July 31, 1898, in the value of the property belonging to general investments . . . . .	. . . . .. . . . .. . . . .. . . . .	. . . . .. . . . .. . . . .. . . . .	. . . . .. . . . .. . . . .. . . . .
The amount of property now belonging to general investments, which was bought by Mr. Hooper, is The amount of property now belonging to special investments, which was bought by Mr. Hooper, is, excluding property bought for University Houses and Lands account,	Book Valuation. \$7,988,691.29	Estim. cash value. \$8,783,204.34	Increase. \$794,573.05
	331,352.02	354,249.72	22,897.70
			% 10— 7—

the estimated increase in the value of all the property now belonging to general investments, is, as previously stated, . . . . .	. . . . .	. . . . .	1,254,101.33	
Total increase, excluding increase in the value of property now belonging to special investments, . . . . .	. . . . .	. . . . .	\$1,526,674.01	
The gains on all sales of property bought by Mr. Hooper were, as previously stated,				
The estimated increase in the value of property, which was bought by Mr. Hooper and is now in possession, is, as previously stated,	Gen. investments	\$794,573.05	\$168,209.63	
Total gain to the University from sales of property, and from increase in the value of property now in possession, bought by Mr. Hooper, excluding property bought for University Houses and Lands account,	Special "	22,897.70	817,470.75	
		. . . . .	\$985,680.38	
	Book Valuation.	Estim. cash value.	Surplus.	%
The amount of property belonging to general investments July 31, 1898, was	\$8,425,361.05	\$9,791,164.34	\$1,365,803.29	16+
The amount of property belonging to special investments July 31, 1898, was	1,805,599.07	2,843,555.41	1,037,956.34	57+
Total property belonging to investments July 31, 1898	\$10,230,960.12	\$12,634,719.75	\$2,403,759.63	23+
The amount of gifts, for all purposes, of money and securities received between April 22, 1876 and July 31, 1898, was . . . . .		. . . . .	\$8,485,596.02	
The above amount of gifts includes the following sums transferred at different times by —				
The Trustees of the Museum of Comparative Zoölogy		\$320,011.86		
The Trustees of the Peabody Museum of American Archaeology and Ethnology.		164,817.30		
The Trustee of the Thayer Scholarships		75,087.33	\$559,916.49	
Three pieces of real estate have been received for which no entry was made in the Treasurer's books, viz; — 16 Quincy St., Cambridge; 38 Quincy St., Cambridge; The Soldier's Field, Brighton . . . . .		. . . . .	\$78,000.	
Two buildings have been built by the givers, no part of the money therefor having been received by the Treasurer — Hemmenway Gymnasium		Estimated value.		
Locker Building (The Soldier's Field).		\$160,000	\$210,000.	
The cost of buildings erected from gifts (included in the above statement of gifts) and interest thereon — including part of the original furniture, and three sections of the University Museum, was . . . . .		. . . . .	\$1,563,654.11	
The estimated cost of the North wing of the Museum of Comparative Zoölogy and of the building of the Peabody Museum of American Archaeology and Ethnology, which have been transferred to the Corporation, was . . . . .		. . . . .	\$515,000.	
The cost of the Gore Hall Extension of 1875-78 and of the improvements of 1895-96 was paid for from the unrestricted University Funds, and amounted to . . . . .		. . . . .	\$119,946.78	

Yours respectfully, ALLEN DANFORTH, *Comptroller*.

NUMBER OF ORDINARY DEGREES IN 1898.

Bachelors of Arts of the Class of 1898	391
Bachelors of Arts out of course	15
Bachelors of Science	29
Bachelors of Science out of course	10
Bachelors of Divinity	3
Bachelors of Laws	130
Bachelors of Laws out of course	8
Doctors of Medicine	124
Doctors of Medicine out of course	1
Doctors of Dental Medicine	36
Doctors of Veterinary Medicine	10
Masters of Arts	102
Masters of Arts out of course	5
Masters of Science	5
Doctors of Philosophy	26
Total	<hr/> 895

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TREASURER'S STATEMENT.



1898.

TREASURER'S STATEMENT.

TO THE BOARD OF OVERSEERS OF HARVARD COLLEGE:—

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1898, in the usual form.

The Funds separately invested, with the income thereof, are as follows:—

	UNIVERSITY.	Principal. July 31, 1898.	Income.
George B. Dorr Fund,			
University Houses and Lands,		\$115,966.56	\$4,721.09
Francis E. Parker Fund,			
University Houses and Lands,		113,817.44	4,633.56
John C. Gray Fund,			
University Houses and Lands,		25,000.00	1,017.76
Joseph Lee Fund,			
University Houses and Lands,		10,000.00	407.11
William F. Weld Fund (part of),			
University Houses and Lands,		16,385.46	286.24
Insurance and Guaranty Fund,			
University Houses and Lands,		141,638.74	5,766.21
Stock Account,			
University Houses and Lands,		70,320.11	3,001.75
John Cowdin Fund,			
Real Estate, Charlestown St., Boston,		22,000.00	1,809.12
Walter Hastings Fund,			
Real Estate, Sacramento St., Cambridge,		20,000.00	1,173.05
Harvard Ellis Fund,			
\$3,000 Little Rock & Fort Smith R. R. 1st M. 7's (sold during year),			174.50
1,000 Kansas City, Fort Scott & Memphis R. R. 1st M. 6's (sold during year),			58.83
5,000 Kansas Equipment 1st M. 5's (sold during year),			261.11
10,000 Current River R. R. 1st M. 5's (sold dur- ing year),			550.42
3,000 Chicago, Burl. & Quincy R. R. Conv. 5's (sold during year),			170.83
220 shares Chicago, Burl. & Quincy R. R. (sold during year),			715.00
Amounts carried forward,		\$535,128.31	\$24,746.58

Amounts brought forward, \$535,128.31 \$24,746.58

COLLEGE.

Stoughton Scholarship (part of), Real Estate in Dorchester,	1,294.30	175.00
Pennoyer Scholarships (part of), Pennoyer Annuity in England,	4,444.44	
Jonathan Phillips' Gift , \$10,000 City of Boston 3½'s,	10,000.00	350.00
Samuel Ward's Gift , Ward's (Bumkin) Island, Boston Harbor, . . .	1,200.00	25.00
Scholarships of the Class of 1856 , \$10,000 Frem., Elkhorn & Mo. Valley R.R. 6's, . .	10,000.00	600.00

LIBRARY.

Ichabod Tucker Fund (part of), Policy of Mass. Hospital Life Insurance Co., . . .	5,000.00	200.00
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MEDICAL SCHOOL.

Henry Willard Williams Fund , 100 shares State Street Exchange (sold during year),		225.00
37 " American Bell Telephone Co. (sold during year),		388.50
22 " Calumet & Hecla Mining Co. (sold during year),		660.00

MUSEUM OF COMPARATIVE ZOÖLOGY.

Agassiz Memorial Fund (part of), Advances for new building (repaid during year), .		293.69
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PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

Peabody Professor Fund , \$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	19,218.64	1,038.84
Peabody Collection Fund , \$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	19,218.64	1,038.84
Peabody Building Fund , \$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	11,512.72	622.32
Thaw Fund , \$20,000 Girard Point Storage Co. 1st M. 3½'s, . . .	20,355.98	700.00

SPECIAL FUNDS.

Bussey Trust , Real Estate,	392,709.18	25,058.72
Robert Troup Paine Fund (accumulating), \$41,000 Massachusetts 3½'s,	43,423.55	1,417.50
Amounts carried forward,	\$1,073,505.76	\$57,539.99

Amounts brought forward, \$1,073,505.76 \$57,539.99

Fund of the Class of 1834,

Policy of Mass. Hospital Life Insurance Co., . . 1,000.00 40.00

Fund of the Class of 1844,

Policy of Mass. Hospital Life Insurance Co., . . 6,500.00 234.35

Fund of the Class of 1853,

Policy of Mass. Hospital Life Insurance Co., . . 3,725.00 149.00

Charles L. Hancock Bequest (part of),

Mortgage (paid during year), 318.31

Real Estate in Chelsea, 1,000.00

Price Greenleaf Fund. The total amount of this Fund is \$719,868.31, which is invested as follows:—

\$43,500 Consolidated R. R. of Vermont 5's, . .	38,280.00	435.00
12,200 Rutland R. R. 6's,	12,932.00	732.00
37,200 Rutland R. R. 5's,	34,968.00	1,860.00
1,000 Cheshire R. R. 6's (paid during year), .		60.00
46,500 Ogdens. & L. Champ. R. R. 6's,	46,500.00	1,395.00
23,800 Ogdens. & L. Champ. R. R. income 6's, .	10,234.00	
3,000 Chicago, Burl. & Quincy R. R. 4's, . . .	2,880.00	120.00
3,000 Chicago, Burl. & Northern R. R. 5's, . .	2,950.00	200.00
290 shares Northern R. R. (N. H.),	29,290.00	1,740.00
800 " Rutland " preferred,	28,000.00	1,600.00
40 " Ogdens. & L. Champ. R. R.,	680.00	
317 " Boston & Maine R. R.,	48,746.21	1,902.00
360 " Boston & Lowell "	46,800.00	2,880.00
237 " Fitchburg R. R., preferred,	22,358.83	948.00
355 " Old Colony "	63,190.00	2,485.00
142 " Chicago, Burl. & Quincy R. R.,	18,946.35	639.00
20 " N. Y. Central & Hudson River R. R., . .	2,260.00	80.00
292 " Michigan Central R. R. (exchanged for bonds during year),		1,168.00
52 " West End Street Railway, preferred, . .	4,305.56	208.00
\$34,000 New York Central & Hudson River R. R. (Michigan Central Collateral) 3½'s, . .	28,412.10	
50,000 Union Pacific R. R. 1st M. & L. G. 4's, .	44,625.00	753.07
50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, .	49,750.00	2,500.00
25,000 New England " " " 6's,	25,593.75	1,500.00
50,000 Chic. Junc. R'y's & Union Stock Yards 5's,	47,000.00	2,500.00
70,000 Broadway Realty Co. Purchase money 1st M. 5's,	75,250.00	3,500.00
35,000 American Bell Telephone Co. 4's,	35,709.72	
Merrimack Manufacturing Co.'s Note (sold during year),		1,400.00
Cash in New England Trust Co.,	206.79	670.49

Totals, \$1,805,599.07 \$89,557.21

The other Funds are invested as a whole. The general investments are stated in detail on pages 30 and 31 of this

report. The usual summary of them, and of their income, is as follows:—

Investments.	Principal, Aug. 1, 1897.	Principal, July 31, 1898.	Income.
Notes, Mortgages, &c.,	\$527,500.00	\$463,500.00	\$18,267.91
United States Bonds,		1,173,767.50	11,205.00
Railroad Bonds and Premiums, . . .	2,171,983.37	2,298,356.62	105,504.33
Railroad Stocks,	249,687.50	249,687.50	10,250.00
Sundry Bonds,	1,007,155.00	1,061,467.50	33,500.00
Manufacturing Stocks,	37,322.29	37,322.29	2,990.00
Real Estate,	2,435,085.98	2,692,953.30	130,127.50
Brattle Street Reversion (1918), . . .	1,000.00	1,000.00	
Advances to Bussey Trust,	54,835.51	54,835.51	2,741.77
“ “ Sch. of Veterinary Med., . . .	24,406.01	24,406.01	1,220.30
“ “ Botanic Department,	13,614.32	12,811.27	680.72
“ “ University Lands,	30,000.00	30,000.00	1,500.00
“ “ Dining Hall Association, . . .	13,732.16	12,232.16	823.93
“ “ Sundry Accounts,		464.88	
Baring Brothers & Company,	2,088.00	2,153.07	65.07
Term Bills due in October,	196,281.84	216,669.04	
Term Bills overdue,	5,582.84	6,971.05	
Cash in Suffolk National Bank, . . .	41,538.26	10,027.59	
Cash in National Union Bank,	268,892.91	50,134.57	5,707.15
Cash in New England Trust Co., . . .			286.85
Cash in hands of Bursar,	17,231.56	26,601.19	
Totals of general investments, . . .	\$7,097,937.55	\$8,425,361.05	\$324,870.53
Totals of special investments, . . .	1,865,115.75	1,805,599.07	89,557.21
Amounts,	\$8,963,053.30	\$10,230,960.12	\$414,427.74

The account of Advances for Railroad Bond Premiums has been credited with the sum of \$21,143.00 as the fair yearly repayment from income on account of premiums advanced.

The net income of the general investments has been divided at the rate of $4\frac{37}{100}$ per cent. among the Funds to which they belong, after allowing to certain temporary Funds and balances a special rate of three per cent. The fraction, which was \$60.32, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1896–97, shows a loss of thirty three one hundredths of one per cent.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments; the income and the expenditure for the Lawrence Scientific School and the College

being, as during the previous year, combined in the College account:—

Interest on Funds for

University Salaries and Expenses,	\$61,092.24
Library Salaries and Expenses (not books),	21,954.79
College Salaries and Expenses,	50,668.42
Gymnasium, and repairs on College buildings, . .	none.
College Term Bills,	435,256.35

Sundry receipts, as follows:—

Gifts for Salaries and Expenses,	\$6,250.00		
Use of buildings (not University Houses and Lands),	1,899.99		
Laboratory and other fees,	42,280.07		
Sales of catalogues, pamphlets, &c.,	3,365.43		
Repayment of advances for books,	28.00		
Unexpended appropriation returned	250.00	54,073.49	\$623,045.29

Expended for

University Salaries and Expenses,	\$75,975.99		
Library Salaries and Expenses (not books),	39,372.68		
College Expenses,	120,247.95		
College Salaries, for instruction,	333,043.11		
Gymnasium Expenses,	11,889.44		
Repairs, insurance and cleaning on College buildings not valued on Treasurer's books,	26,384.13		
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Undergraduate Depart- ment,	18,250.00		
Deficit in the School of Veterinary Medicine for 1897-98, assumed by the University,	1,728.31	\$626,891.61	
Balance, showing the deficit for the year, which has been charged to Stock Account,			\$3,846.32

The University, College, Lawrence Scientific School, and Library accounts, taken together, show a material increase of income from Funds as well as from tuition fees. There has been some increase of ordinary expenditure, chiefly for instruction, and an unusual expenditure of \$18,250 for the extinction of the obligation of the College to the Museum of Comparative Zoölogy. The year's deficit of the Veterinary School, amounting to \$1,728.31, has also been taken from unrestricted income of the University. This year the City of Cambridge has assessed taxes on certain lands and buildings belonging to the College and occupied by College officers or students. Pending the determination by the courts of the legality of

these assessments, the College has this year assumed a charge of \$2,922.50. For all these purposes, it has been necessary to use the whole income of the Stock Account, and to take from the capital of that account the sum of \$3,846.32, for the year's deficit. For 1896-97 there was a like deficit of \$18,370.23.

The Divinity School, with a large increase of income from tuition fees, and a corresponding increase of expenditures for instruction, has a deficit of \$4,191.51. The annual gift from the Society for Promoting Theological Education, received since closing the books for the year and amounting to \$2,088.60, would have largely reduced this deficit if received at the usual time. For 1896-97 there was a deficit of \$1,305.37.

The Law School, with more tuition fees, has a surplus of \$29,624.34. For 1896-97 the surplus was \$7,103.88.

The Medical School, with largely increased expenditure for instruction, has a deficit of \$1,737.66. In 1896-97 there was a surplus of \$2,259.59.

The Dental School has a surplus of \$4,900.64. For 1896-97 the surplus was \$1,881.03.

The Museum of Comparative Zoölogy used the income of its restricted Funds as required by the terms of gift; the Sturgis Hooper Fund being allowed to accumulate. There has been a surplus of unrestricted income amounting to \$1,044.20, as compared with a surplus of \$1,247.12 in 1896-97. In addition the Museum has received from the College the sum of \$18,250, as a repayment of expenditures made in past years for the benefit of undergraduates. Of this sum \$6,167.39 has been used to repay with interest the balance due the Agassiz Memorial Fund, for advances made for the extension of the Museum building.

For the General Account of the Observatory there is a deficit of \$269.82. In 1896-97 there was a surplus of \$506.39. The income of the Boyden Fund has been used for work in Peru, and large gifts from Mrs. Draper have been used for the special research work of the Draper Memorial.

The income of the Bussey Institution exceeded its ordinary expenses by \$3,161.96. In addition, an unusual expenditure of \$3,900 for rebuilding the Whitney barn was made from money received in 1896-97 from insurance.

For the Veterinary School, with some falling off of receipts from instruction, and a large decrease of expenditure for salaries and wages, there has been a deficit of \$1,728.31. This has been taken from the unrestricted income of the University. Last year this deficit was \$5,487.34.

Gifts have been received during the year as follows:—

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From the estate of George E. Ellis, \$7,098.40 additional, on account of his residuary bequest to constitute a fund to be known as the "Harvard Ellis Fund," in memory of his son, John Harvard Ellis of the class of 1862.

From Mrs. William Belden Noble, \$20,000, to establish, in memory of her late husband, the William Belden Noble Lectures.

From the Harvard Memorial Society, \$1,200, as a permanent fund, the income to be spent by the Society with the approval of the President and Fellows.

From the estate of John W. Carter, \$12,500, for his unrestricted bequest "for the benefit of the University."

From the estate of Theodore Lyman, \$10,000, his unrestricted bequest "for the benefit of said College."

From the estate of Henry L. Pierce, his bequest of \$50,000 for a permanent Fund, the use of the income thereof being unrestricted, and \$700,000 on account of his unrestricted residuary bequest.

From Miss Amelia M. Prichard, \$10,000, and from Miss Frances J. H. Prichard, \$5,000, to establish a Fund in memory of their brother, William Mackay Prichard, of the Class of 1833, the income thereof to be used "to increase the Fine Arts Collections of said College."

From an anonymous giver, \$100,000, to establish a Fund, to be called for the present the Unknown Memorial Fund.

From William C. Damon and Perley L. Horne, a fund of \$5,000, paid to them from the estate of Ralph Hamilton Shepard, "to be used to the advancement of Christian work at Harvard," and accumulated interest thereon of \$478.98; the fund to be known as the Ralph Hamilton Shepard Memorial

Fund, and the income to be used "in an impartial and non-sectarian way for religious work at Harvard University in connection with the work of the Phillips Brooks House."

From an anonymous giver, through J. B. Warner, \$20,000, for the partial foundation of the Asa Gray Professorship of Systematic Botany. One of the conditions of this gift is "that a further sum of thirty thousand dollars be secured, by or on behalf of the University, on or before Commencement Day in the year 1899, as a permanent fund to be called the Asa Gray Memorial Fund, the income of which shall be used for the maintenance of the Gray Herbarium, including salaries of assistants, purchase of specimens and other expenses incidental to the support and increase of the Herbarium."

From the estate of Clement K. Fay, \$1,000, to be added to the Class of 1867 Scholarship Fund.

From Charles A. Cummings and Margaret K. Cummings, \$5,000, to endow, in memory of their son, the Francis Hathaway Cummings Scholarship.

From the estate of William L. Chase, his bequest of \$5,000, with accumulated interest of \$305.83, to establish "a scholarship in the Medical School to be known as the Charles B. Porter Scholarship."

From the estate of Mrs. Sophia Gage Burr, \$271.27, additional, as the final payment on account of her residuary bequest for maintaining the Burr Scholarships in Harvard College.

From William B. Buckminster, \$5,000, to found, in memory of his son, who would have entered Harvard College in the Class of 1902, the Morey Willard Buckminster Scholarship.

From the trustees under the will of William Hilton, \$17,500, on account of his bequest for establishing the William Hilton Scholarship Fund.

From the trustee of the Thayer Scholarships, \$75,087.33, the total cash proceeds of the scholarship fund property held by him, to be invested with the general investments of the University and administered in accordance with the terms of the trust.

From Hennen Jennings, \$10,072.40, to found a scholarship in the Lawrence Scientific School.

From James H. Hyde, \$100, to be added to the fund established from Miss Elizabeth Torrey's bequest "for the purchase of books for the library of the Historical Department."

From the estate of Charles L. Hancock, \$5,149.61, on account of his residuary bequest.

From the estate of Miss Eliza Appleton Haven, \$25,000, and from the estate of Miss Charlotte Maria Haven, \$20,000, their bequests (made in accordance with the wishes of their brother, the late Horace Appleton Haven, to contribute to the advancement of astronomical science) for establishing the Haven Fund, the income thereof to be expended "for direct purposes connected with Astronomical Science at the University Observatory."

From the estate of Miss Charlotte Maria Haven, \$5,000, her bequest for establishing the Haven Fund, the income thereof to be used for the purchase of books for the library of the Divinity School.

For the Francis James Child Memorial Fund, from

		Amount brought forward .	\$166.15
Kuno Francke	\$26.15	James Huntington	3.00
John L. Gardner	100.00	Miss Catherine Ireland	5.00
William W. Goodwin	15.00	Gardiner M. Lane	20.00
Henry L. Higginson	25.00		
Amount carried forward . .	\$166.15		\$194.15

From the estate of Antoine Ruppaner, \$4,335.94, as the final payment, after deducting the New York collateral inheritance tax and interest thereon, on account of his bequest of \$10,000 for establishing the "Dr. Ruppaner Fund" for the use of the Medical School.

From the estate of Buckminster Brown, \$904.49, on account of the income of Dr. Brown's bequest, now in the hands of trustees, for the establishment of the John B. and Buckminster Brown Professorship of Orthopedic Surgery.

From the J. W. and Belinda L. Randall Charities Corporation, \$5,000, to establish the John W. and Belinda L. Randall Fund, the income to be applied to the maintenance or in the interest of certain "philanthropic activity on the part of the students of the University, or in case this work should be given up, to be applied by said President and Fellows to kindred purposes."

From the Treasurer of the Class Subscription Fund, the additional sum of \$125.

From Miss Abby A. Bradley, \$20,000, to establish the William L. Bradley Fund, the income to be expended "by the Director of the Arnold Arboretum in scientific investigation to increase the knowledge of trees."

The total amount of these gifts for capital account is \$1,146,323.40, as is also stated on page 24 of this report.

GIFTS FOR IMMEDIATE USE.

From the J. W. and Belinda L. Randall Charities Corporation, \$10,000, "to be applied to the construction of the Phillips Brooks House to ensure in that building suitable accommodations for the charitable work of the organization known as the Student Volunteer Committee, so long as said organization shall retain the approval of the President and Fellows."

Through Clarence J. Blake, \$3,750, towards the cost of the land bought for the purposes of a University Infirmary. The balance of the cost of this land and the cost of the examination of title, amounting to \$3,854.30, were paid by the University for the account of University Houses and Lands.

From Mrs. C. M. Barnard, \$600, her fifteenth yearly payment for the Warren H. Cudworth Scholarships.

From Mrs. Henry Draper, of New York, an additional sum of \$9,999.96, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stella spectra, with which the late Dr. Henry Draper's name is honorably associated.

From the estate of John Lowell, \$400, the thirteenth yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

From William W. Goodwin, \$9.96, to be added to the income of the Charles Haven Goodwin Scholarship Fund.

For the account of Scholarship and Beneficiary Money Returned, from

		Amount brought forward .		\$981.38
Aibert Blair	\$34.00	H. W. Waterman	159.00	
F. P. Garland	100.00	W. E. Weaver	50.00	
Charles F. Mason	529.38	W. T. B. Williams	35.00	
Sidney Otis	318.00			
Amount carried forward . .	\$981.38			\$1,225.38

For the use of the Botanic Garden, Museum, and Laboratories, from

Anonymous, through G. L.	Amount brought forward . .	\$2,500
Goodale \$1,500	John L. Gardner	1,000
Anonymous, through G. L.	Henry Lee	1,000
Goodale 1,000	H. H. Hunnewell	1,000
Amount carried forward . .		<u>\$5,500</u>

From an anonymous giver, through G. L. Goodale, \$7,000, for the construction of greenhouses at the Botanic Garden.

From Oswald Garrison Villard, \$300, for a course of lectures on civic problems.

Through Miss Marian C. Jackson, \$1,000, for the salary for 1897-98 of the Instructor in the History and Art of Teaching, and \$150 for the salary for 1897-98 of the Lecturer on Manual Training.

From Henry C. Warren, \$750, additional, to be applied to the printing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts.

From William G. Farlow, his annual gift of \$450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From James A. Garland, \$3,000, for salaries in the department of Architecture.

From the Department of Mathematics, \$350, towards the salary for 1898-99 of an Instructor in Mathematics.

For the Department of Political Economy, from

An Anonymous giver	\$200
Class of 1879	300
	<u>\$500</u>

For the Department of French, from

Cercle Français	\$100
Howard C. Smith	100
	<u>\$200</u>

For the library of the Department of Architecture, from

	Amount brought forward . .	\$175
Arthur Astor Carey \$100	Mrs. Charles A. Cummings . .	50
Thornton Chard 25	E. Burgess Warren	100
Charles A. Cummings 50	E. R. Warren	25
Amount carried forward . .		<u>\$350</u>

From Kuno Francke, \$13.26, for the Department of German.

From Henry C. Warren, \$116.76, for the Sanskrit Class Room library.

From Nathaniel C. Nash, \$500, to be spent by Professor John Williams White in such manner as he shall think will best advance the interests of the Department of Greek.

From an anonymous giver, through William G. Farlow, \$500, to be spent on cases for, and the arrangement of, the cryptogamic collection on the lower floor of the University Museum.

From William G. Farlow, \$300, for cases for the exhibition of fungi.

From John C. Ropes, \$100, for the Ropes Prize.

From the estate of Miss Edith Rotch, her bequest of \$5,000, for the Lawrence Scientific School.

For the purchase of books for the Library, from

Archibald Cary Coolidge	\$115.57
Dante Society	100.00
G. L. Kittredge	10.00
E. V. Morgan	10.00
	<u>\$235.57</u>

For the purchase of books for the Child Memorial Library, from

Department of English	\$70
James Hazen Hyde	100
	<u>\$170</u>

From James Byrne, \$700, to be added to the balance of Scholarship Money Returned, in the Law School.

From Miss Lucy Ellis, \$6,000, for assistance in the Departments of Physiology and Pathological Bacteriology at the Medical School for three years ending July 31, 1898.

From Walter G. Chase, \$200, for the increase of the Embryological collection.

From friends, through Henry P. Bowditch, \$75, to be added to the salary of the Instructor in Pharmacology for 1897-98.

From Henry F. Sears, \$1,500, for the Pathological Department Library.

From Moorfield Storey and James J. Putnam, \$500, from the income of a trust fund held by them, for the payment of certain salaries in the Medical School.

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1898, from

William H. Potter	\$5
Charles Wilson	10
	<u>\$15</u>

For the Free Clinic for Animals in connection with the School of Veterinary Medicine, from

		Amount brought forward . . .	\$253
Bryce J. Allan	\$5	Mrs. W. B. Potter	50
M. A. Bailey	1	Henry P. Quincy	10
The Misses Battelle	5	H. C. Richards	5
Mrs. Freeman J. Bumstead	5	Malbon Gore Richardson	5
Miss Martha C. Codman	25	George W. Taylor	5
Robert Codman	10	L. B. Thacher	3
Mrs. James M. Crafts	5	T. C. Thacher	2
Miss Marian M. Crafts	5	Augustus L. Thorndike	5
C. A. Curtis	10	T. W. Thorndike	5
Francis Dumaesq	5	Bayard Thayer	100
Horatio J. Gilbert	5	E. V. R. Thayer	200
W. E. Harmon	2	John E. Thayer	100
Nathaniel H. Henchman	20	W. Lyman Underwood	5
John Homans	5	Mrs. H. V. Ward	5
C. M. Keep	2	Samuel D. Warren	20
R. Ashton Lawrence	100	John D. Williams	30
Mrs. Theodore Lyman	10	Miss L. H. Williams	25
Miss Eleanor G. May	3	Ralph B. Williams	25
Grenville H. Norcross	10	Mrs. Roger Wolcott	10
L. J. Parker	10	Miss Margaret G. Wyman	5
Henry Pickering	10		
Amount carried forward . . .	\$253		<u>\$868</u>

From Charles Sprague Sargent, \$2,383.87 additional, which has been expended for books for the Arnold Arboretum.

For the Arnold Arboretum, from

Shepherd Brooks	\$700
H. H. Hunnewell	600
Massachusetts Society for Promoting Agriculture	<u>2,500</u>
	\$3,800

From Jacob H. Schiff, \$5,000, for additions to the Semitic Museum and Library.

For the Peabody Museum of American Archaeology and
Ethnology for salaries and expenses, from

Trustees of the estate of Mrs. Mary Hemenway	\$500
Francis C. Lowell	100
Mrs. George G. Lowell	100
Clarence B. Moore	750
	<hr/>
	\$1,450

Through William Hooper, Treasurer of The Soldier's Field
Fund, \$1,847.71, for the improvement of The Soldier's Field.

Through Augustus P. Gardner, gifts for the improvement of
The Soldier's Field, from

		Amount brought forward	\$6,728.00
C. F. Adams, 2d	\$100.00	F. L. Higginson	2,000.00
F. L. Ames	500.00	H. H. Hunnewell	500.00
O. Ames	500.00	J. Lee	10.00
C. W. Amory	500.00	J. Leiter	500.00
F. I. Amory	50.00	Arthur Lyman	10.00
J. S. Bigelow	50.00	Grenville Norcross	100.00
W. S. Bigelow	500.00	Otis Norcross	100.00
R. S. Bradley	200.00	J. H. Proctor	150.00
P. C. Brooks	200.00	W. B. Thomas	1,000.00
Shepherd Brooks	500.00	Francis Shaw	100.00
J. Caswell	50.00	C. F. Sprague	500.00
J. Crane, Jr.	50.00	J. J. Storrow, Jr.	100.00
W. D. Denegre	100.00	W. A. Wadsworth	500.00
W. S. Dexter	100.00	Fred Warren, Jr.	100.00
Tracy Dows	250.00	Fiske Warren	166.66
W. H. Forbes	500.00	H. C. Warren	166.66
A. P. Gardner	500.00	S. D. Warren	166.68
J. L. Gardner	500.00	S. M. Weld	300.00
W. A. Gardner	500.00		<hr/>
Harv. Club of Western N.Y.	78.00	Interest on deposit	53.67
A. Hemenway	1,000.00		
Amount carried forward .	\$6,728.00		<hr/>
			\$13,251.67

From Herbert M. Sears, \$500, and from C. C. Walker, \$100,
for the improvement of The Soldier's Field.

*The total amount of these gifts for immediate use is
\$90,662.14, as is also stated on page 24 of this report.*

CHARLES F. ADAMS, 2D, *Treasurer.*

BOSTON, November 11, 1898.

ACCOUNTS.

*General Statement of Receipts and Disbursements
for the year ending*

INCOME.

Interest on notes, mortgages, advances, &c.,	\$27,322.90	
United States 5's (after deducting \$6,295 for sinking premiums),	11,205.00	
Massachusetts 3½'s,	1,417.50	
City of Boston 3½'s,	350.00	
Chicago Sanitary District 5's,	5,000.00	
Metropolitan Telephone & Telegraph Co. 5's,	7,500.00	
New England Telephone and Telegraph Co. 6's,	7,500.00	
Chicago Junc. Railways & Union Stock Yards Co. 5's,	15,000.00	
Broadway Realty Co. 5's,	8,500.00	
Girard Point Storage Co. 3½'s,	700.00	
Policies Mass. Hospital Life Insurance Co.,	623.35	
Deposit in New England Trust Co.,	971.41	
Deposit in National Union Bank,	5,707.15	
Interest on Railroad Bonds (after deducting \$21,143 for sinking premiums).		
Fremont, Elkhorn & Mo. Valley 6's,	\$600.00	
Consolidated R. R. of Vermont 5's,	435.00	
Rutland Railroad 6's,	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Ogdensburg & Lake Champlain 6's,	1,395.00	
Chicago, Burlington & Northern 5's,	200.00	
Chicago, Burlington & Quincy 4's,	120.00	
Chicago, Burlington & Quincy 7's,	24,136.00	
Chicago, Burlington & Quincy conv. 5's,	4,372.83	
Burlington & Mo. River in Neb. 6's,	23,765.00	
Eastern Railroad sterling 6's,	5,704.80	
Eastern Railroad 6's,	18,490.00	
Union Pacific R'y Omaha Bridge Renewal 5's,	5,687.50	
Fort Scott, So. E. & Memphis 7's,	6,478.00	
Chicago & No. W., Madison Extension 7's,	5,310.00	
Minneapolis Union 5's,	4,866.00	
Kansas City, Fort Scott & Memphis 6's,	58.83	
Little Rock & Fort Smith 7's,	174.50	
Kansas Equipment 5's,	261.11	
Kansas & Missouri 5's,	2,700.00	
Union Pacific 4's,	7,618.10	
Current River 5's,	550.42	115,575.09
Dividends on Stocks.		
Amoskeag Manufacturing Co.,	\$480.00	
Merrimack " "	510.00	
Pacific Mills,	2,000.00	2,990.00
Chicago, Burlington & Quincy R. R.,	\$3,604.00	
New York Central & Hudson River R. R.,	8,080.00	
Amounts carried forward,	\$11,684.00	\$210,362.40

*of the Treasurer of Harvard College,
July 31, 1898.*

EXPENSES.

Paid to account of Expenses in the

University, as per Table I (page 54).

Fellowships and Scholarships,	\$13,475.00	
Prizes,	300.00	
Salaries,	35,947.33	
Sundry payments made from special Funds, .	18,587.59	
Other expenses	36,928.66	
Deficit in the School of Veterinary Medicine for 1897-98,	1,728.31	\$106,966.89

College, as per Table II (page 58).

Salaries for instruction,	\$333,143.11	
Sundry salaries,	11,780.50	
Repairs, insurance, and cleaning on College Edifices, not valued on Treasurer's books, .	26,384.13	
General expenses,	61,084.17	
Scholarships,	35,773.52	
Beneficiaries,	18,780.28	
Prizes,	1,075.13	
Botanic Garden and Botanic Museum, . . .	10,058.08	
Herbarium,	6,370.41	
Hemenway Gymnasium,	11,889.44	
Jefferson Physical Laboratory,	3,788.13	
Books for special departments,	2,226.73	
Apparatus, &c., from special gifts,	2,794.11	
Printing, from Publication Funds,	2,127.58	
Summer Schools,	13,399.06	
Appleton Chapel,	7,599.00	
Appropriations for collections and laboratories,	26,285.22	
Stoughton Pasture expenses,	550.00	
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Under- graduate department,	18,250.00	593,358.60

Library, as per Table III (page 69).

Salaries,	\$12,791.66	
Services and wages	17,821.44	
Books,	15,418.40	
Other expenses,	8,759.58	54,791.08

Divinity School, as per Table IV (page 72).

Salaries for instruction,	\$26,991.56	
Scholarships and Beneficiaries,	2,169.46	
Other expenses,	8,935.02	38,096.04

Amount carried forward, \$793,212.61

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (*continued*).

Amounts brought forward, . . . \$11,684.00 \$210,362.40

Dividends on Stocks (*continued*).

Michigan Central R. R.,	1,168.00	
Rutland R. R., preferred,	1,600.00	
Northern R. R. (N. H.),	1,740.00	
Fitchburg R. R., preferred,	948.00	
Boston & Maine R. R.,	1,902.00	
Boston & Lowell R. R.,	2,880.00	
Old Colony R. R.,	2,485.00	
West End Street Railway, preferred,	208.00	24,615.00
<hr/>		
State Street Exchange,	\$225.00	
American Bell Telephone Co.,	388.50	
Calumet & Hecla Mining Co.,	660.00	1,273.50
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Real Estate Investments, from rents, &c., net receipts.

Cambridge (University Houses and Lands)

Gross receipts,	\$41,519.98	
Less Taxes,	\$6,380.21	
Insurance,	86.90	
Repairs, improvements, care, &c.,	15,219.15	21,686.26 \$19,833.72
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Boston (general investments).

Gross receipts,	\$178,134.34	
Less Taxes,	\$32,524.70	
Insurance,	5,028.98	
Repairs, improvements, care, &c.,	10,453.16	48,006.84 130,127.50
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Bussey real estate.

Gross receipts,	\$41,393.43	
Less Taxes,	\$7,762.30	
Insurance,	43.74	
Interest,	2,741.77	
Repairs, improvements, care, &c.,	1,180.95	
Heat and power,	4,605.95	16,334.71 25,058.72
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Sundry estates (special investments).

Gross receipts,	\$4,926.02	
Less Taxes,	\$859.40	
Insurance,	327.00	
Repairs,	557.45	1,743.85 3,182.17 178,202.11
<hr/>		

Amount carried forward, \$414,453.01

*of the Treasurer of Harvard College,
July 31, 1898.*

EXPENSES (*continued*).

Amount brought forward,		\$793,212.61
Law School , as per Table V (page 74).		
Salaries for instruction,	\$41,250.00	
Scholarships,	3,000.00	
Other expenses,	26,023.92	70,273.92
Medical School , as per Table VI (page 75).		
Salaries for instruction,	\$92,200.00	
Fees repaid to Instructors,	5,604.00	
Scholarships and Beneficiaries,	4,448.18	
Boylston Medical Prizes and expenses, . .	200.00	
Warren Anatomical Museum,	963.31	
Sundry payments made from special Funds, .	2,396.88	
Laboratory expenses, &c.,	7,451.51	
Other expenses,	31,484.22	144,748.10
Dental School , as per Table VII (page 78).		
Salaries for instruction,	\$12,146.00	
Other expenses,	13,257.21	25,403.21
Museum of Comparative Zoölogy , as per Table VIII (page 79).		
Paid from sundry Funds on the order of the		
Faculty,	\$20,067.13	
Sturgis Hooper Fund, expenses,	171.31	
Scholarship,	250.00	20,488.44
Peabody Museum of American Archae- ology and Ethnology , as per Table IX (page 80).		
Peabody Professor Fund, Peabody Pro- fessor,		
Fellowships and Scholarships,	1,662.23	
Other expenses,	5,943.10	9,834.89
Observatory , as per Table X (page 81).		
Salaries,	\$10,950.00	
Other expenses,	36,242.05	47,192.05
Bussey Institution , as per table XI (page 82).		
Salaries for instruction,	\$6,400.00	
Rebuilding Whitney barn,	3,900.00	
Other expenses,	8,301.63	18,601.63
Arnold Arboretum , as per Table XI (page 82).		
Salaries,	\$3,500.00	
Other expenses,	10,725.40	14,225.40
Amount carried forward,		\$1,143,980.25

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amount brought forward,		\$414,453.01
Term Bills.		
College, as per Table II,	\$435,256.35	
Divinity School, as per Table IV,	8,103.74	
Law School, as per Table V,	80,200.00	
Medical School, as per Table VI,	111,962.74	
Dental School, as per Table VII,	20,054.83	
Peabody Museum of American Archaeology and Ethnology, as per Table IX,	403.56	
Bussey Institution, as per Table XI,	575.00	
School of Veterinary Medicine, as per Table XII,	4,874.00	661,430.22
Sundries.		
Asa Gray's copyrights,	\$1,806.31	
Trustee of Thayer Scholarships,	1,500.00	
Matthews Scholarships ($\frac{1}{2}$ net rents of Hall),	5,080.48	
Trustees of Edward Hopkins ,	204.98	
Sale of grass, wood, old material, &c.,	4,495.77	
Sale of old examination papers,	254.29	
Sale of tickets to Commencement Dinner,	662.00	
Sale of tickets to Divinity School Alumni Dinner,	28.00	
Sale of books, pamphlets, catalogues, &c.,	4,739.92	
Sale of geographical models,	363.75	
Board of horses, cattle, &c., at Bussey Institution,	2,687.53	
Repayment of advances for microscopes,	514.95	
Repayment of advances for books,	16.00	
Repayments for keys,	22.00	
Repayment of part of cost of publishing <i>Observatory Annals</i> ,	750.00	
Repayment of general average deposits,	15.55	
Laboratory instruction to Dental and Veterinary students at Medical School,	2,794.00	
Laboratory instruction to Medical and Veterinary students at Dental School,	2,015.00	
Subscriptions to Veterinary Hospital,	740.00	
Use of Library by resident graduates and others,	75.00	
Use of lockers in Hemenway Gymnasium,	4,358.50	
Use of Buildings (not University Houses and Lands),	4,174.99	
Fees for admission and condition examinations,	2,356.00	
Fees in Infirmary, Dental School,	6,639.98	
Fees from Veterinary Hospital and Forge,	15,543.53	
Fees from Free Clinic,	255.47	
Fees for examination for degree of Ph.D.,	30.00	
Laboratory fees,	19,947.72	
Amounts carried forward,		\$82,071.72 \$1,075,883.23

of the Treasurer of Harvard College,
July 31, 1898.

EXPENSES (*continued*).

Amount brought forward,	\$1,143,980.25	
School of Veterinary Medicine , as per Table XII (page 83).		
Salaries for instruction,	\$6,155.82	
Scholarships,	300.00	
Other expenses,	17,821.06	
	<u>\$24,276.88</u>	
Less deficit for 1897-98 assumed by the University,	1,728.31	22,548.57
Annuities from the following Funds.		
Bussey Trust ,	\$4,000.00	
Gore ,	255.62	
Gurney ,	1,000.00	
Henry Willard Williams ,	1,162.50	
Anonymous ,	200.00	6,618.12
Class Funds.		
Paid the Secretary of the Class of 1844 , . .	\$200.00	
“ “ “ “ 1853 , . .	149.00	349.00
Sundry payments from income.		
From Gray Fund for Engravings, to the Treasurer of the Museum of Fine Arts, and expenses,	\$687.29	
From Daniel Williams Fund , for the benefit of the Herring Pond and Masphee Indians, . .	770.19	
From Sarah Winslow Fund , to the Minister and Teacher at Tyngsborough, Mass.,	219.54	
From John Witt Randall Fund , expenses on account of the Randall collection,	357.34	
From Woodland Hill Fund , expenses on land, plans, and surveys,	3,883.40	
From Bussey Trust , expenses in connection with the Bussey portraits and furniture (given by the College to Mr. Bussey's family after Mrs. Motley's children ceased to occupy the Mansion House),	50.00	5,967.76
Total amount of expenses,	\$1,179,463.70	

INVESTMENTS AND SUNDRY PAYMENTS.

\$200,000 United States 5's of 1904,	\$227,000.00	
500,000 United States 4's of 1925,	609,000.00	
1,000 Massachusetts 3½'s (Robert Troup Paine Fund),	1,085.82	
Amounts carried forward,	\$837,085.82	\$1,179,463.70

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amounts brought forward,	\$82,071.72	\$1,075,883.23
Fees for Summer Courses,	\$15,185.00	
Other receipts from Summer Courses,	186.21	15,371.21
Fees for use of camp at Martha's Vineyard,		67.69
Fines,		78.80
Insurance,		226.50
Unexpended appropriation returned,	250.00	
Dividend on bank deposit,	3.38	98,069.30
Sundry Gifts for immediate use (see page 16),		90,662.14
Total amount of income,		\$1,264,614.67

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS FOR CAPITAL ACCOUNT.

Harvard Ellis Fund (additional),	\$7,098.40	
Harvard Memorial Society Fund,	1,200.00	
John W. Carter Fund,	12,500.00	
Theodore Lyman Fund,	10,000.00	
William Mackay Prichard Fund,	15,000.00	
Unknown Memorial Fund,	100,000.00	
Ralph Hamilton Shepard Memorial Fund,	5,478.98	
Henry L. Pierce Residuary Bequest,	700,000.00	
Henry L. Pierce Fund,	50,000.00	
Asa Gray Professorship of Systematic Botany,	20,000.00	
Class Subscription Fund (additional),	125.00	
Francis Hathaway Cummings Scholarship Fund,	5,000.00	
Charles B. Porter Scholarship Fund,	5,305.83	
Burr Scholarship Fund (additional),	271.27	
Morey Willard Buckminster Scholarship Fund,	5,000.00	
William Hilton Scholarship Fund,	17,500.00	
Thayer Scholarship Fund,	75,087.33	
Hennen Jennings Scholarship Fund,	10,072.40	
Gift to be added to Elizabeth Torrey Bequest,	100.00	
Charles L. Hancock Bequest (additional),	5,149.61	
Haven Fund (Observatory),	45,000.00	
Haven Fund (Divinity School),	5,000.00	
Francis James Child Memorial Fund (additional),	194.15	
Dr. Rupper Fund (additional),	4,335.94	
John B. and Buckminster Brown Professorship Fund (additional),	904.49	
William L. Bradley Fund,	20,000.00	
John W. and Belinda L. Randall Fund,	5,000.00	
William Belden Noble Lectures Fund,	20,000.00	
Class of 1867 Scholarship Fund (additional),	1,000.00	1,146,323.40
Amount carried forward,		\$2,410,938.07

of the Treasurer of Harvard College,
July 31, 1898.

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amounts brought forward,		\$837,085.82	\$1,179,463.70
50,000 Union Pacific R. R. 1st M. 4's (Price			
Greenleaf Fund),	44,625.00		
400,000 Union Pacific R. R. 1st M. 4's,	353,114.75		
7,800 Burlington & Missouri River R. R. (Neb.) 6's	8,385.00		
400,000 Walter Baker & Company Limited 4½'s, . .	400,000.00		
100,000 American Bell Telephone Co. 4's,	101,750.00		
35,000 American Bell Telephone Co. 4's (Price			
Greenleaf),	35,612.50		
34,000 New York Central & Hudson River R. R.			
(Mich. Cent. Coll.) 3½'s (Price Green-			
leaf),	28,412.10		
Accrued interest and expenses on bonds, . .	1,762.40	1,810,747.57	
Improvements on Gray Estate,	\$66,666.67		
Estate Nos. 413-415 Washington St., Boston,	191,200.65		
Estate No. 29 Kirkland Street, Cambridge,	25,075.65		
Land for an infirmary, Mt. Auburn St., Cambridge			
(part),	3,854.30		
Carey Athletic Building,	15,000.00	301,797.27	
Paid Baring Brothers & Co. in account,	\$66.77		
Less commission and expenses,	1.70	65.07	

Amount carried forward, \$3,292,073.61

*General Statement of Receipts and Disbursements
for the year ending*

Amount brought forward, \$2,410,938.07

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

SALES.

\$175,000 U. P. Omaha Bridge Ren. 5's (exchanged for \$175,000 U. P. 1st M. 4's, valued at \$152,114.75, and 437½ shares U. P. pre- ferred stock, sold for \$26,468.75), . . .	\$178,583.50	
100,000 Chicago Sanitary District 5's,	104,320.83	
18,600 Burlington & Missouri River R. R. (Neb.) 6's (paid off at par),	18,600.00	
16,000 Fort Scott, South Eastern & Memphis R. R. 1st M. 7's (paid off at 105),	16,800.00	
3,000 Little Rock & Fort Smith R. R. 1st M. 7's, .	2,940.00	
1,000 Kansas City, F. S. & Memphis R. R. 1st M. 6's,	1,020.00	
3,000 Chicago, Burl. & Quincy R. R. conv. 5's, . .	3,165.00	
10,000 Current River R. R. 1st M. 5's,	7,000.00	
5,000 Kansas Equipment 1st M. 5's,	3,750.00	
220 shares Chicago, Burlington & Quincy R. R.,	21,452.50	
100 shares State Street Exchange,	11,587.50	
22 shares Calumet & Hecla Mining Co., . . .	11,429.00	
37 shares American Bell Telephone Co., . . .	9,120.50	
\$1,000 Cheshire R. R. 6's (paid off at par), . . .	1,000.00	
292 shares Michigan Central R. R. exchanged for N. Y. Central & H. R. R. R. (Mich. Cent. Coll.) 3½'s,	28,032.00	
1,000 Chic., Burl. & North. R. R. 5's (paid off at 105),	1,050.00	
52 Rights, West End Street Railway,	24.44	
Land on Holyoke Street, Cambridge,	28,548.00	
Land taken by the Metropolitan Water Board on west side of North Harvard Street, Brighton,	2,500.00	450,923.27

SUNDRIES.

Dining Hall Association, to reduce debt,	\$1,500.00	
Premiums on United States Bonds, repaid in part, . .	6,295.00	
Advances to premiums on R. R. Bonds, repaid in part,	21,143.00	
Advances to accrued interest and expenses on bonds, repaid,	1,381.90	
Advances to Museum of Comparative Zoölogy, repaid from College income (less interest, \$293.69), . . .	17,956.31	
Scholarship and Beneficiary money returned by Bene- ficiaries,	25.56	48,301.77
Notes and Mortgages paid off,	\$961,697.00	
Less invested in notes of Manufacturing Cos., . .	858,000.00	103,697.00
Amount carried forward,	\$3,013,860.11	

*of the Treasurer of Harvard College,
July 31, 1898.*

Amount brought forward, \$3,292,073.61

Amount carried forward \$3,292,073.61

*General Statement of Receipts and Disbursements
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amount brought forward, \$3,013,860.11

Bursar's Sundry Accounts.

Receipts during the year, 359,841.19

Balance, August 1, 1897.

Cash in Suffolk National Bank,	\$41,538.26	
Cash in National Union Bank,	268,892.91	
Cash in New England Trust Co.,	50,847.17	
Cash in hands of Charles F. Mason, Bursar, . .	17,231.56	
Term Bills due October, 1897,	196,281.84	
“ “ overdue,	5,582.84	580,374.58
Total,		\$3,954,075.88

*of the Treasurer of Harvard College,
July 31, 1898.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amount brought forward, \$3,292,073.61

Bursar's Sundry Accounts.

Payments during the year.

On account of Harvard Dining Association,	\$192,997.49	
On account of Foxcroft Club,	30,975.21	
On sundry accounts,	127,419.34	351,392.04

Balance, July 31, 1898.

Cash in Suffolk National Bank,	\$10,027.59	
Cash in National Union Bank,	50,134.57	
Cash in New England Trust Co.,	206.79	
Cash in hands of Charles F. Mason, Bursar,	26,601.19	
Term Bills due October, 1898,	216,669.04	
“ “ overdue,	6,971.05	310,610.23
Total,		\$3,954,075.88

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1898.

Separate Investments, as stated in detail on pages 3, 4, and 5 of this report, consisting of

Railroad Bonds,	\$281,731.10	
Sundry Bonds,	307,083.00	
Railroad Stocks,	264,576.95	
University Houses and Lands,	493,128.31	
Other Real Estate,	438,203.48	
Sundries,	20,669.44	
Cash in New England Trust Co.,	206.79	\$1,805,599.07

And "General Investments," as follows:—

Mortgages and Notes.

Mortgages,	\$13,500.00	
Boott Cotton Mills' Note,	100,000.00	
Massachusetts Cotton Mills' Note,	50,000.00	
Merrimack Manufacturing Co.'s Notes,	100,000.00	
Pacific Mills' Notes,	200,000.00	463,500.00

United States Bonds.

\$500,000 United States 5's of 1904,	\$564,767.50	
500,000 United States 4's of 1925,	609,000.00	1,173,767.50

Railroad Bonds.

\$425,800 Burl. & Mo. R. in Nebr. non ex. 6's, . .	\$425,800.00	
87,000 Ft. Scott, So. E. & Mem., 1st M. 7's, .	87,000.00	
393,000 Eastern, 1st M. 6's of 1906,	393,000.00	
£19,600 Eastern " " Sterling of 1906, . .	95,383.40	
\$500,000 Chic., Burl. & Quincy Consol. 7's of 1903, .	500,000.00	
100,000 Chic., Burl. & Quincy Conv. 5's of 1903, .	100,000.00	
100,000 Chic. & No. W. Madison Ex. 1st M. 7's of 1911,	100,000.00	
100,000 Minneapolis Union 1st M. 5's of 1922, .	100,000.00	
400,000 Union Pacific 1st M. & L. G. 4's of 1947, .	353,114.75	
Railroad Bond Premiums,	144,058.47	2,298,356.62

Sundry Bonds.

\$100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's of 1918,	\$99,500.00	
100,000 New England Tel. & Tel. Co. 6's of 1906, .	102,375.00	
100,000 American Bell Tel. Co. 4's of 1908, . .	101,750.00	
250,000 Chicago Junction Railways and Union Stock Yards Coll. Trust 5's of 1915, . .	250,342.50	
100,000 Broadway Realty Co. Purchase money 1st M. 5's of 1926,	107,500.00	
400,000 Walter Baker & Co. Ltd. 4½'s of 1903, .	400,000.00	1,061,467.50

Amount carried forward, \$6,802,690.69

Amount brought forward, \$6,802,690.69

Sundry Stocks.

12 shares Amoskeag Manufacturing Co., . . .	\$3,654.00	
17 " Merrimack " " . . .	17,000.00	
20 " Pacific Mills,	16,668.29	
500 " Chicago, Burl. & Quincy R. R., . .	45,000.00	
2000 " N. Y. Central & Hud. River R. R., .	204,687.50	287,009.79

Real Estate.

Amory Estate, Franklin Street, Boston, . . .	\$165,615.81	
Webb Estate, Washington Street, Boston, . . .	164,604.79	
Gray Estate, Washington Street, Boston, . . .	834,231.77	
Adams Estate, Washington Street, Boston, . . .	441,200.65	
Lowell Estate, Washington Street, Boston, . . .	464,368.91	
Hayward Estate, Washington Street, Boston, . .	578,361.88	
Townsend Estate, Hawkins Street, Boston, . . .	44,569.49	
Reversion of Buildings in Brattle Street, Boston,	1,000.00	2,693,953.30

Sundries.

Advances to Bussey Trust,	\$54,835.51	
" " School of Veterinary Medicine, . .	24,406.01	
" " Botanic Department,	12,811.27	
" " University Lands,	30,000.00	
" " Dining Hall Association,	12,232.16	
" " Sundry Accounts,	464.88	
Baring Brothers & Co.,	2,153.07	
Term bills due October, 1898,	216,669.04	
" " overdue,	6,971.05	360,542.99
Cash in Suffolk National Bank,	10,027.59	
" " National Union Bank,	50,134.57	
" " hands of Charles F. Mason, Bursar, . .	26,601.19	86,763.35
Total,		\$10,230,960.12

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

Principal, Aug. 1, 1897.	UNIVERSITY FUNDS.	Principal, July 31, 1898.
\$74,166.43	Stock Account (so called),	\$70,320.11
141,638.74	Ins. and Guaranty Fund (so called), .	141,638.74
15,750.00	Israel Munson Fund,	15,750.00
16,871.63	Leonard Jarvis Fund,	16,871.63
25,000.00	John C. Gray Fund,	25,000.00
115,966.56	George B. Dorr Fund,	115,966.56
113,817.44	Francis E. Parker Fund,	113,817.44
5,000.00	Stanton Blake Fund,	5,000.00
4,771.33	Charlotte F. Blanchard Fund, .	4,771.33
10,000.00	Joseph Lee Fund,	10,000.00
100,000.00	William F. Weld Fund,	100,000.00
10,000.00	Henry P. Kidder Fund,	10,000.00
48,458.50	George Draper Fund,	48,458.50
46,913.13	Isaac Sweetser Fund,	46,913.13
5,000.00	George Baxter Hyde Fund, . .	5,000.00
85,408.34	Harvard Ellis Fund,	101,030.49
5,250.00	Samuel D. Bradford Fund, . . .	5,250.00
22,000.00	John Cowdin Fund,	22,000.00
23,370.03	John L. Russell Fund,	23,370.03
81,950.54	Henry T. Morgan Fund,	81,950.54
	Theodore Lyman Fund,	10,000.00
	John W. Carter Fund,	12,500.00
	Gore Fund,	20,571.18
	Henry L. Pierce Fund,	50,000.00
	Henry L. Pierce Residuary Be- quest,	700,000.00
5,000.00	Seth Turner Fund,	5,000.00
30,000.00	William Perkins Fund,	30,000.00
20,000.00	Walter Hastings Fund,	20,000.00
63,608.65	President's Fund,	63,398.27
154.71	Thomas Cotton Fund,	154.24
319,972.28	Retiring Allowance Fund,	331,705.06
56,432.23	William Hayes Fogg Fund, . .	52,239.67
	John W. and Belinda L. Randall Fund,	5,145.65
70,000.00	J. W. and Belinda L. Randall Construction Fund,	68,484.87
14,443.54	Gifts for Phillips Brooks House, .	25,079.35
55,989.23	John Parker Fellowships,	55,635.95
12,318.71	Robert Treat Paine Fellowship, .	12,107.05
10,835.21	Harris Fellowship,	11,058.70
10,730.80	John Thornton Kirkland Fellows'p,	10,649.74
11,295.45	James Walker Fellowship,	11,289.04
\$1,632,113.48	. . . Amounts carried forward,	\$2,458,127.27

Principal, Aug. 1, 1897.		Principal, July 31, 1898.
\$1,632,113.48	. . Amounts brought forward, . . .	\$2,458,127.27
31,918.27	Rogers Fellowships,	32,563.09
11,188.39	Henry Lee Memorial Fellowship,	11,227.31
10,323.26	Ozias Goodwin Memorial Fellows'p,	10,549.38
21,259.52	Whiting Fellowships,	21,288.58
11,076.42	H. B. Rogers Memorial Fellows'p,	11,110.44
11,530.48	John Tyndall Scholarship, . . .	11,534.34
	Francis H. Cummings Scholars'p,	5,045.54
	William Hilton Scholarships, . .	17,526.04
39,027.47	Joseph Eveleth Fund,	39,279.61
1,562.80	Frank Bolles Memorial Fund, . .	1,573.10
	Ralph Hamilton Shepard Memo- rial Fund,	5,515.16
250.00	George Griswold Van Rens- selaer Fellowship (balance), . .	
6,540.16	George B. Sohler Prize Fund, . .	6,761.47
2,749.05	Sumner Prize Fund,	2,869.18
2,365.23	John O. Sargent Prize Fund, . .	2,368.58
3,474.02	Robert N. Toppan Prize Fund, .	3,475.83
1,209.08	James Gordon Bennett Prize F'd,	1,261.91
50.00	Robert Treat Paine Prizes (bal.),	
100.00	Dante Prizes (balance),	100.00
8,598.37	Lectures on Political Economy Fund,	8,974.10
5,431.12	Ingersoll Lecture Fund,	5,477.64
	William Belden Noble Lectures,	20,000.00
1,573.15	Gifts for Semitic Collection, . . .	6,665.34
417.54	" " " Library,	212.05
		\$2,683,505.96

COLLEGE FUNDS.

27,748.64	Alford Professorship,	\$27,748.64
28,337.40	Boylston "	28,337.40
21,619.50	Eliot "	21,619.50
10,000.00	Eliot "(Jon. Phillips' gift),	10,000.00
3,500.01	Erving "	3,500.01
35,990.99	Fisher "	35,990.99
	Asa Gray "(Systematic Botany),	20,509.85
20,217.08	Hersey "	20,217.08
21,744.18	Hersey "(Thomas Lee's gift),	21,744.18
3,747.33	Hollis "(Mathematics), . . .	3,747.33
34,517.60	Hollis "(Divinity),	34,517.60
43,062.93	McLean "	43,062.93
21,000.00	Perkins "	21,000.00
25,020.19	Plummer "	25,020.19
52,500.00	Pope "	52,500.00
56,441.25	Rumford "	56,441.25
23,139.83	Smith "	23,139.83
193,807.20	Gurney Fund,	190,276.57
\$2,425,151.94	. . Amounts carried forward, . . .	\$639,373.35
		\$2,683,505.96

Principal, Aug. 1, 1897.		Principal, July 31, 1898.
\$2,425,151.94	. . Amounts brought forward, . . .	\$639,373.35 \$2,683,505.96
16,240.38	Fund for Permanent Tutors,	16,240.38
15,796.97	Lee Fund for Reading,	15,796.97
150,127.54	Class Subscription Fund, . . .	150,252.54
3,153.79	Paul Dudley Fund for Lectures,	3,191.62
31,500.00	Jonathan Phillips Fund,	31,500.00
1,050.00	John A. Blanchard "	1,050.00
7,142.07	John W. P. Abbot "	7,454.18
13,744.01	Daniel H. Pierce "	13,804.07
6,230.00	Daniel Austin "	6,230.00
2,707.18	Schol. & Benef. money returned (bal.),	2,519.78
343.89	Henry Flynt's Bequest,	342.75
3,594.62	Abbott Scholarship,	3,551.72
1,509.01	Alford "	1,574.95
5,463.19	Bartlett "	5,368.58
5,752.60	Bassett "	5,734.01
12,464.63	Bigelow "	12,509.35
1,756.59	Borden Scholarship,	1,833.37
111,828.32	Bowditch "	111,881.88
1,676.00	Bright " (balance), .	1,701.84
3,678.43	Browne "	3,689.16
	Morey Willard Buckminster Sch.,	5,018.22
31,096.66	Burr Scholarship,	31,669.06
6,152.46	Ruluff S. Choate Scholarship, . .	6,121.30
7,866.62	Class of 1802 Scholarship, . . .	7,910.41
3,110.99	" 1814 "	3,080.28
6,123.32	" 1815 "(Kirkland),	6,190.90
4,255.64	" 1817 "	4,291.63
3,476.54	" 1828 "	3,478.48
4,574.75	" 1835 "	4,674.68
4,169.48	" 1841 "	4,085.01
4,919.90	" 1852 "(Dana), . .	4,934.90
10,000.00	" 1856 "	10,000.00
3,456.49	" 1867 "	4,516.61
11,298.98	Crowninshield "	11,326.09
600.00	W. H. Cudworth " (balance),	600.00
5,509.29	George & Martha Derby Sch.,	5,500.03
4,708.71	Julius Dexter Scholarship, . . .	4,764.49
5,465.58	W. S. Eliot "	5,537.78
2,048.27	Fall River "	2,057.77
6,135.81	Farrar "	6,070.61
10,802.44	Richard Augustine Gambrill Scholarship,	10,874.49
5,990.04	Charles Haven Goodwin Sch.,	6,000.00
4,052.71	Benjamin D. Greene Scholarship,	4,029.83
300.00	Price Greenleaf Sch. (balance),	200.00
10,208.40	Ebenezer Rockwood Hoar Sch.,	10,254.49
\$2,977,234.24	. . Amounts carried forward, . . .	\$1,198,787.56 \$2,683,505.96

Principal, Aug. 1, 1897.		Principal July 31, 1898.	
\$2,977,234.24	. . Amounts brought forward, . . .	\$1,198,787.56	\$2,683,505.96
6,085.62	Levina Hoar Scholarship,	6,101.58	
12,021.29	Hodges "	12,346.61	
5,836.92	Hollis "	5,892.00	
	G. E. Lowell " (balance),	66.66	
4,441.52	Matthews "	4,522.00	
5,585.09	Merrick "	5,629.15	
7,816.57	Morey "	7,858.17	
5,452.94	Lady Mowlson "	5,491.24	
5,117.50	Howard Gardner Nichols Sch.,	5,341.11	
4,193.95	Lucy Osgood Scholarship, . . .	4,377.23	
6,593.11	Pennoyer "	6,467.02	
4,054.95	Perkins "	4,082.15	
1,412.38	Wendell Phillips Mem'l Scholars'p,	1,420.74	
1,207.42	Rodger Scholarship,	1,260.17	
3,387.72	Henry B. Rogers Scholarship, .	3,435.78	
5,383.63	Edward Russell " .	5,418.91	
5,247.86	Sales Scholarship,	5,310.54	
4,429.65	Saltonstall "	4,423.24	
5,031.96	Leverett Saltonstall Scholarship,	5,051.86	
6,844.10	Mary Saltonstall Scholarship, . .	6,793.18	
3,242.71	Sever Scholarship,	3,234.43	
10,382.44	Sewall "	10,436.13	
48,050.95	Shattuck "	48,000.58	
5,880.04	Slade "	5,970.34	
4,247.43	Story "	4,283.02	
2,492.78	Stoughton Scholarship,	2,170.13	
	Thayer "	75,428.00	
4,025.91	Gorham Thomas Scholarship, . .	4,001.85	
7,288.81	Toppan "	7,307.34	
24,764.35	Townsend "	24,729.88	
4,216.70	Walcott "	4,300.98	
10,874.87	Whiting "	11,016.77	
1,333.34	Exhibitions,	1,333.34	
1,954.31	Palfrey Exhibition,	1,959.70	
10,422.52	Henry B. Humphrey Fund, . .	10,478.01	
1,945.44	Robert Keyne Fund, . . (1659)	1,945.44	
1,245.85	William Brattle " . . (1717)	1,245.85	
347.94	Henry Gibbs " . . (1722)	350.05	
336.70	Ephraim Flynt " . . (1723)	336.70	
748.25	Thomas Danforth Fund, (1724)	780.94	
157.12	Anne Mills " (1725)	163.98	
561.19	Thomas Fitch " (1737)	585.71	
202.01	Benjamin Wadsworth Fund, (1737)	210.84	
299.28	John Ellery " (1738)	312.35	
112.23	Henry Flynt " (1760)	117.12	
149.65	Joseph Sewall " (1765)	156.20	
\$3,222,661.24	. . Amounts carried forward, . . .	\$1,520,932.58	\$2,683,505.96

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$3,222,661.24	. . Amounts brought forward, . . .	\$1,520,932.58	\$2,683,505.96
419.04	Nathaniel Appleton Fund (1772)	437.35	
269.38	Edward Holyoke " (1743)	281.13	
735.59	Mary Lindall " (1812)	767.75	
1,200.00	Samuel Ward Fund,	1,200.00	
2,221.80	John Glover "	2,318.90	
11,155.10	Quincy Tufts "	11,155.10	
5,448.73	Day "	5,448.73	
10,534.61	Munroe "	10,534.61	
	Unknown Memorial Fund,	101,697.02	
4,222.50	Dr. A. P. Peabody Memorial Fund,	4,247.56	
7,024.87	Price Greenleaf Aid (balance), .	5,496.65	
3,880.77	Boylston Prizes for Elocution, . .	3,855.37	
14,562.53	Bowdoin Prizes for Dissertations,	14,598.93	
1,048.46	Sales Prize,	1,049.26	
1,564.86	Hopkins Gift for "Deturs" (bal.),	1,603.10	
900.68	Chauncey Wright Fund,	907.91	
50,000.00	Increase S. Wheeler Fund, . .	50,000.00	
1,033.57	Fund for Religious Services,	1,033.57	
15,369.78	John E. Thayer Fund,	15,309.17	
7,071.15	Classical Publ. F'd of Class of 1856,	7,080.15	
39,780.00	Botanic Department Fund,	39,780.00	
	Gift for greenhouses at the Botanic Garden,	7,000.00	
66,382.31	Lowell Fund for a Botanic Garden,	66,382.31	
26,695.76	Herbarium Fund,	23,937.93	
75,000.00	Physical Laboratory Endowment, . .	75,000.00	
10,406.09	Henry Warren Torrey Fund, .	10,159.76	
935.25	Elizabeth Torrey Bequest, . . .	1,079.56	
11,278.76	Francis James Child Mem. Fund,	11,014.65	
8,119.66	Joseph Lovering Fund,	7,798.67	
6,126.83	Cyrus M. Warren "	5,980.48	
438.65	Jefferson Physical Lab'y (balance),		
4,098.72	George William Sawin Fund, .	4,277.85	
1,048.41	Sundry Gifts (unexpended balances),	1,770.69	
179.63	Gifts for Classical Library (balance),	233.03	
56.59	" Historical " "	21.64	
2,491.89	" Sanskrit Department, . . .	3,398.44	
4,750.00	" College Salaries,	3,850.00	2,021,639.85

LIBRARY FUNDS.

100,000.00	Eben Wright Fund,	\$100,000.00	
26,017.36	Constantius "	25,966.38	
500.00	Jarvis "	500.00	
11,925.34	Daniel Treadwell Fund,	11,925.34	
10,552.72	Subscription for Library (1859), . .	10,516.27	
2,112.64	Bowditch Fund,	2,108.20	
\$3,770,221.27	. . Amounts carried forward, . . .	\$151,016.19	\$4,705,145.81

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$3,770,221.27	. . Amounts brought forward, . . .	\$151,016.19	\$4,705,145.81
162.10	Bright Fund (balance),	28.00	
27,819.39	Edwin Conant Fund,	27,710.85	
5,309.96	Denny "	5,267.54	
5,264.27	Farrar "	5,253.74	
3,152.11	Haven "	3,126.85	
10,051.19	Hayes "	10,015.36	
5,258.94	Hayward "	5,252.57	
2,387.21	Hollis "	2,371.12	
2,136.06	Homer "	2,138.13	
5,286.49	Lane "	5,276.72	
24,439.33	Lowell "	24,654.52	
60,516.38	Minot "	60,122.38	
7,170.37	Lucy Osgood "	7,101.38	
7,063.07	Mary Osgood "	6,988.36	
4,060.10	Sales "	3,967.16	
5,288.90	Salisbury "	5,331.58	
20,261.49	Sever "	20,043.54	
3,975.31	Shapleigh "	3,960.50	
37,516.71	Sumner "	37,398.22	
5,010.84	Tucker "	5,067.15	
5,294.69	Ward "	5,265.68	
15,873.94	Walker "	15,822.20	
717.14	Waterston Gift (balance),	312.80	
10,082.41	J. Huntington Wolcott Fund,	10,047.52	
479.50	Sundry Gifts, etc. (unexpended bals.),	546.91	424,086.97

DIVINITY SCHOOL FUNDS.

32,615.90	Divinity School (balance),	\$28,424.39	
37,583.74	Bussey Professorship,	37,583.74	
16,015.81	Parkman "	16,015.81	
6,008.43	Hancock "	6,008.43	
51,845.73	Winn Professorship of Ecclesiastical History,	52,345.73	
38,734.39	Frothingham Professorship,	40,427.07	
20,280.38	Dexter Lectureship,	20,280.38	
9,184.69	Henry Lienow Fund,	9,184.69	
5,250.00	Mary P. Townsend Fund,	5,250.00	
2,100.00	Winthrop Ward "	2,100.00	
1,050.00	Samuel Hoar "	1,050.00	
1,050.00	Abraham W. Fuller "	1,050.00	
1,050.00	Caroline Merriam "	1,050.00	
7,875.00	Joseph Baker "	7,875.00	
40,000.00	Thomas Tileston of New York Endowment,	40,000.00	
10,000.00	Henry P. Kidder Fund,	10,000.00	
17,000.00	Oliver Ames "	17,000.00	
\$4,342,443.24	. . Amounts carried forward, . . .	\$295,645.24	\$5,129,232.78

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$4,342,443.24	. . . Amounts brought forward, . . .	\$295,645.24	\$5,129,232.78
1,000.00	Abby Crocker Richmond Fund,	1,000.00	
71,427.02	New Endowment (1879),	71,427.02	
1,000.00	John L. Russell Fund,	1,000.00	
1,807.73	John W. Quinby "	1,886.74	
10,000.00	William B. Spooner Fund, . . .	10,000.00	
5,000.00	Edwin Conant " . . .	5,000.00	
911.34	Lewis Gould " . . .	911.34	
2,177.95	Joshua Clapp " . . .	2,177.95	
525.00	Hannah C. Andrews " . . .	525.00	
1,000.00	Adams Ayer " . . .	1,000.00	
890.00	Daniel Austin " . . .	890.00	
580.89	Louisa J. Hall " . . .	605.30	
	Haven Fund,	5,000.00	
3,130.37	Rushton Dashwood Burr Fund,	3,238.78	
14,390.06	Jackson Foundation,	14,378.90	
5,273.33	Thomas Cary Scholarships, . . .	5,223.76	
2,596.28	George Chapman " . . .	2,609.73	
4,268.70	Joshua Clapp " . . .	4,335.26	
4,973.78	J. Henry Kendall " . . .	4,991.14	
3,353.91	Nancy Kendall " . . .	3,360.48	
13,110.00	Abner W. Buttrick Fund, . . .	13,042.91	
1,050.00	William Pomroy " . . .	1,050.00	
3,826.84	Beneficiary money returned, . . .	3,994.08	453,293.63

LAW SCHOOL FUNDS.

140,486.93	Law School (balance),	\$70,111.27	
15,750.00	Dane Professorship,	15,750.00	
23,979.82	Bussey "	23,979.82	
8,340.81	Royall "	8,340.81	
94,994.97	Weld "	94,994.97	
62,846.97	Bemis "	65,593.38	
47,021.25	Law School Book Fund,	47,021.25	
	Law School Library Fund,	100,000.00	
850.34	Scholarship money returned, . . .	1,587.48	427,378.98

LAWRENCE SCIENTIFIC SCHOOL FUNDS.

40,805.73	Professorship of Engineering, . . .	\$40,805.73	
61,536.43	Abbott Lawrence Fund,	61,536.43	
50,375.00	James Lawrence "	50,375.00	
30,686.85	John B. Barringer "	30,686.85	
25,000.00	Arthur Rotch "	25,000.00	
5,578.16	George A. Gardner "	5,500.00	
	Edith Rotch "	5,018.22	
	Hennen Jennings Scholarship, .	10,274.16	229,196.39

\$5,102,989.70	. . . Amounts carried forward,	\$6,239,101.78	
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Principal, Aug. 1, 1897.		Principal, July 31, 1898.
\$5,102,989.70	.. Amounts brought forward,	\$6,239,101.78

MUSEUM OF COMPARATIVE ZOÖLOGY FUNDS.

1,512.55	Museum of Comparative Zoölogy (bal.),	\$14,639.36	
50,000.00	Gray Fund for Zoölogical Museum,	50,000.00	
297,933.10	Agassiz Memorial Fund, }	297,933.10	
7,594.01	Teachers' and Pupils' " }	7,594.01	
117,469.34	Permanent Fund,	117,469.34	
7,740.66	Humboldt "	7,740.66	
5,493.72	Virginia Barret Gibbs Sch., . .	5,483.81	
104,600.90	Sturgis Hooper Fund,	109,000.65	609,860.93

PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY
AND ETHNOLOGY FUNDS.

58.50	Peabody Museum (balance), . . .	\$729.46	
47,364.66	Peabody Professor Fund,	47,403.92	
47,975.34	Peabody Collection "	47,335.10	
28,355.56	Peabody Building "	28,355.56	
10,263.00	Huntington Frothingham Wol-		
	cott Fund,	10,248.49	
30,124.14	Thaw Fund,	30,122.11	
10,952.10	Hemenway Fund,	11,030.70	
5,155.80	Robert C. Winthrop Scholarship,	5,247.78	180,473.12

MEDICAL SCHOOL FUNDS.

75,493.98	Medical School (balance),	\$73,756.32	
19,192.65	Jackson Medical Fund,	19,192.65	
17,129.20	Geo. C. Shattuck "	17,129.20	
100,849.17	George Fabyan "	100,252.40	
50,685.40	William O. Moseley Fund, . . .	52,900.33	
1,042.01	John B. & Buckminster Brown		
	Professorship,	2,011.39	
13,910.28	Warren F'd for Anatom'l Museum,	13,554.84	
3,420.00	Boylston Fund for Medical Prizes,	3,369.45	
3,662.07	Boylston " " " Books,	3,448.41	
1,342.32	Medical Library Fund,	1,400.97	
2,000.00	Quincy Tufts Medical Fund, . .	2,000.00	
25,512.68	Edward M. Barringer " . .	25,512.68	
15,765.11	Mary W. Swett " . .	15,765.11	
20,000.00	Samuel W. Swett " . .	20,000.00	
1,836.08	Samuel E. Fitz " . .	1,836.08	
6,083.77	J. Ingersoll Bowditch " . .	6,074.95	
5,000.00	Dr. Rupperner Fund,	9,335.94	
5,019.60	Surgical Laboratory Fund,	5,000.00	
25,000.00	Henry Willard Williams Fund,	32,540.57	
38,750.00	New Subscription Fund (1888), . .	38,750.00	

\$6,307,277.40	.. Amounts carried forward, . . .	\$443,831.29	\$7,029,435.83
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Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$6,307,277.40	. . . Amounts brought forward, . . .	\$443,831.29	\$7,029,435.83
7.25	John Foster income for Medical Students (balance),	145.82	
5,626.21	D. W. Cheever Scholarship, . .	5,672.07	
6,139.39	C. M. Jones " . .	6,157.66	
6,163.93	Isaac Sweetser " . .	6,183.30	
4,084.17	Charles Pratt Strong Scholars'p,	4,122.64	
5,093.88	Alfred Hosmer Linder " . .	5,116.49	
	Charles B. Porter " . .	5,369.37	
5,107.72	Edward Wigglesworth " . .	5,130.94	
5,235.55	Geo. Cheyne Shattuck Memorial Fellowship,	5,239.36	
5,202.83	John Ware Memorial Fellowship,	5,205.20	
5,472.07	Chas. Eliot Ware " . .	5,486.20	
5,379.46	William H. Thorndike Prize F'd,	5,614.52	
	Gifts for Pathological Dep't Library,	1,592.34	504,867.20

DENTAL SCHOOL FUNDS.

17,699.10	Dental School (balance),	\$22,599.74	
15,255.85	Dental School Endowment,	15,255.85	
15,572.37	Gifts for Building,	16,039.54	53,895.13

OBSERVATORY FUNDS.

1,461.38	Observatory (balance),	\$1,191.56	
110,293.88	Edward B. Phillips Fund, . . .	110,293.88	
21,000.00	James Hayward " . . .	21,000.00	
32,593.37	David Sears " . . .	33,305.53	
9,801.58	Josiah Quincy " . . .	10,229.93	
2,000.00	Charlotte Harris " . . .	2,000.00	
5,000.00	Thomas G. Appleton Fund, . .	5,000.00	
13,380.00	Augustus Story " . .	13,380.00	
50,000.00	Observatory Endowment (1882), . .	50,000.00	
273,557.86	Robert Treat Paine Fund, . . .	273,557.86	
50,000.00	Paine Professorship,	50,000.00	
208,835.04	Uriah A. Boyden Fund,	206,621.45	
	Haven Fund,	45,000.00	
599.60	Bruce Gift (balance),	94.66	
2,500.00	J. Ingersoll Bowditch Fund, . .	2,500.00	
693.18	Draper Memorial (balance), . .	1,524.43	825,699.30

OTHER FUNDS FOR SPECIAL PURPOSES.

392,709.18	Bussey Trust (income thereof, $\frac{1}{2}$ to Bussey Institution, $\frac{1}{4}$ to Law Sch'l, and $\frac{1}{4}$ to Divinity School),	\$392,709.18	
15,933.72	Bussey Institution (balance), . . .	15,195.68	
\$7,599,675.97	. . . Amounts carried forward, . . .	\$407,904.86	\$8,413,897.46

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$7,599,675.97	. . Amounts brought forward, . . .	\$407,904.86	\$8,413,897.46
7,718.68	Woodland Hill Fund,	3,946.33	
157,508.00	James Arnold "	157,852.15	
	Arnold Arboretum (balance), . . .	333.20	
1,249.75	Arboretum Construction Gifts, . . .	1,287.24	
	William L. Bradley Fund, . . .	20,655.50	
50,000.00	Bright Legacy,	50,000.00	
42,839.53	Robert Troup Paine Fund, . .	44,257.03	
42,000.00	James Savage "	42,000.00	
3,171.50	John Foster "	3,171.50	
29,939.33	Henry Harris "	29,939.33	
2,000.00	John L. Russell "	2,000.00	
16,777.70	Gray Fund for Engravings, . .	16,828.61	
29,843.01	John Witt Randall Fund, . .	31,759.16	
	William M. Prichard Fund, . .	15,191.19	
	Harvard Memorial Society Fund, .	1,208.74	
5,286.93	Gospel Church "	5,517.97	
1,040.00	Fund of the Class of 1834 , . . .	1,080.00	
6,500.00	" " " 1844 ,	6,534.35	
3,725.00	" " " 1853 ,	3,725.00	
719,978.31	Price Greenleaf Fund,	719,868.31	
5,276.31	O. W. Doe Scholarship,	5,346.87	
5,812.83	Lewis and Harriet Hayden Sch.,	5,718.68	
20,571.18	Gore Annuity Fund (transferred to University Funds).		
5,064.41	Anonymous Annuity Fund,	5,085.71	
	Gifts for the Improvement of The Soldier's Field,	14,579.35	
72,918.60	Charles L. Hancock Fund, . .	78,068.21	
24,553.23	Bursar's Sundry Accounts,	33,002.38	
86,687.62	Gains and Losses for General Invest- ments,	87,633.45	
1,625.00	Sundry Balances,	1,341.72	1,795,836.84

FUNDS IN TRUST FOR PURPOSES NOT
CONNECTED WITH THE COLLEGE.

16,500.19	Daniel Williams Fund for the conversion of the Indians,	\$16,451.05	
4,790.22	Sarah Winslow Fund for the Minister and Teacher at Tyngs- borough, Mass.,	4,774.77	21,225.82
<hr/> \$8,963,053.30		<hr/> \$10,230,960.12	

Changes in the Funds during the year ending July 31, 1898.

Total amount of Funds and balances, July 31, 1898,	
as before stated,	\$10,230,960.12
Total amount of Funds and balances, August 1, 1897,	
as before stated,	8,963,053.30
Showing a total increase during the year of	<u>\$1,267,906.82</u>

Which is made up as follows:—

Gifts forming new Funds or increasing old ones, .	\$1,146,323.40
Increase of Funds established during the year, . .	3,939.90
Credit balances created,	128,589.77
Gain from change of investments,	15,660.75
	<u>\$1,294,513.82</u>

Deduct from this amount

Decrease more than increase of Funds		
and balances, which appear both at		
the beginning and end of the year, .	\$21,912.03	
Loss from change of investment,	110.00	
Sundry balances used up,	738.65	
Decrease of Stock Account, by excess of		
expenditures over income in College,		
Library, and University accounts, .	3,846.32	26,607.00
	<u>3,846.32</u>	<u>\$1,267,906.82</u>

Net increase of Funds and balances as above, . . .	\$148,190.42
Less decrease as above,	<u>26,607.00</u>

Leaving amount of the net increase of the Funds	
and balances, excluding gifts for capital ac-	
count, as is also shown in the following table, .	<u>\$121,583.42</u>

Statement showing Changes in the Different Funds

Increase of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

Retiring Allowance Fund,	\$11,732.78	
Joseph Eveleth Fund,	252.14	
Ingersoll Lecture Fund,	46.52	
Gifts for Phillips Brooks House,	10,635.81	
Lectures on Political Economy Fund,	375.73	
Frank Bolles Memorial Fund,	10.30	
Rogers Fellowship,	644.82	
Henry Lee Memorial Fellowship,	38.92	
Ozias Goodwin Memorial Fellowship,	226.12	
Henry Bromfield Rogers Memorial Fellowship,	34.02	
Harris Fellowship,	223.49	
Whiting Fellowships,	29.06	
John Tyndall Scholarship,	3.86	
Sumner Prize Fund,	120.13	
Robert N. Toppan Prize Fund,	1.81	
George B. Sohier " "	221.31	
John O. Sargent " "	3.35	
James Gordon Bennett Prize Fund,	52.83	
Gifts for Semitic Collection,	5,092.19	\$29,745.19

COLLEGE.

John W. P. Abbot Fund,	\$312.11	
Daniel H. Pierce "	60.06	
Paul Dudley Fund,	37.83	
Henry Gibbs "	2.11	
Thomas Danforth Fund,	32.69	
Anne Mills Fund,	6.86	
Thomas Fitch Fund,	24.52	
Benjamin Wadsworth Fund,	8.83	
John Ellery Fund,	13.07	
Henry Flynt "	4.89	
Joseph Sewall Fund,	6.55	
Nathaniel Appleton Fund,	18.31	
Edward Holyoke Fund,	11.75	
Mary Lindall Fund,	32.16	
Alford Scholarship,	65.94	
Bigelow "	44.72	
Samuel A. Borden Scholarship,	76.78	
Bowditch Scholarship,	53.56	
Bright " (balance),	25.84	
Browne "	10.73	
Burr "	301.13	

Amounts carried forward, \$1,150.44 \$29,745.19

and balances during the year ending July 31, 1898.

Decrease of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

President's Fund,	\$210.38	
Thomas Cotton Fund, . . . . .	.47	
Robert Treat Paine Fellowship,	211.66	
John Parker Fellowships,	353.28	
John Thornton Kirkland Fellowship,	81.06	
James Walker Fellowship,	6.41	
William Hayes Fogg Fund,	4,192.56	
J. W. and Belinda L. Randall (construction), . . .	1,515.13	
Gift for Semitic Library,	205.49	\$6,776.44

COLLEGE.

Gurney Fund,	\$3,530.63	
Henry Flynt's Bequest,	1.14	
Abbot Scholarship,	42.90	
Bartlett "	94.61	
Bassett "	18.59	
R. S. Choate Scholarship,	31.16	
Class of 1814 "	30.71	
" 1841 "	84.47	
George and Martha Derby Scholarship,	9.26	
Farrar Scholarship,	65.20	
Greene "	22.88	
Price Greenleaf Scholarship (balance),	100.00	
Pennoyer Scholarship,	126.09	
Saltonstall "	6.41	
Mary Saltonstall Scholarship,	50.92	
Sever "	8.28	
Shattuck "	50.37	
Stoughton "	322.65	
Gorham Thomas "	24.06	
Townsend "	34.47	
Scholarship and Beneficiary money returned (balance), . .	187.40	
Price Greenleaf Aid (balance),	1,528.22	
Boylston Prizes for Elocution,	25.40	
John E. Thayer Fund,	60.61	
Henry Warren Torrey Fund,	246.33	
Joseph Lovering Fund,	320.99	
Cyrus M. Warren "	146.35	
Herbarium Fund,	2,757.83	
Frances James Child Memorial Fund,	458.26	
Gifts for College Salaries,	900.00	
Gifts for Historical Library,	34.95	11,321.14

Amount carried forward, \$18,097.58

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,		\$1,150.44	\$29,745.19
Class of 1802	Scholarship,	43.79	
“ 1815	“(Kirkland),	67.58	
“ 1817	“	35.99	
“ 1828	“	1.94	
“ 1835	“	99.93	
“ 1852	“(Dana),	15.00	
“ 1867	“	60.12	
Crowninshield	“	27.11	
Julius Dexter	“	55.78	
W. S. Eliot	“	72.20	
Fall River	“	9.50	
Richard Augustine Gambrill	Scholarship,	72.05	
Charles Haven Goodwin	Scholarship,	9.96	
Hodges	Scholarship,	325.32	
Ebenezer Rockwood Hoar	Scholarship,	46.09	
Levina Hoar	Scholarship,	15.96	
Hollis	“	55.08	
Henry B. Humphrey	Fund,	55.49	
Matthews	Scholarships (balance),	80.48	
Merrick	“	44.06	
Morey	“	41.60	
Lady Mowlson	Scholarship,	38.30	
Howard Gardner Nichols	Scholarship,	223.61	
Wendell Phillips	Memorial Scholarship,	8.36	
Lucy Osgood	Scholarship,	183.28	
Perkins	“	27.20	
Rodger	“	52.75	
Henry B. Rogers	Scholarship,	48.06	
Edward Russell	“	35.28	
Sales	“	62.68	
Leverett Saltonstall	“	19.90	
Slade	“	90.30	
Sewall	“	53.69	
Story	“	35.59	
Toppan	“	18.53	
Walcott	“	84.28	
Whiting	“	141.90	
Palfrey	Exhibition,	5.39	
John Glover	Fund,	97.10	
Bowdoin	Prizes for Dissertations,	36.40	
Hopkins	Gift for “Deturs” (balance),	38.24	
Sales	Prize Fund, . . . . .	.80	
Chauncey Wright	Fund,	7.23	
Classical Publication Fund of the Class of 1856,	. . . . .	9.00	

Amounts carried forward, \$3,703.34 \$29,745.19

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$18,097.58

LIBRARY.

Bright Fund (balance),	\$134.10	
Constantius Fund,	50.98	
Edwin Conant Fund,	108.54	
Subscription for Library (1859),	36.45	
Bowditch Fund,	4.44	
Denny "	42.42	
Farrar "	10.53	
Haven "	25.26	
Hayes "	35.83	
Hayward "	6.37	
Hollis "	16.09	
Lane "	9.77	
Minot "	394.00	
Lucy Osgood Fund,	68.99	
Mary Osgood "	74.71	
Sales "	92.94	
Sever "	217.95	
Shapleigh "	14.81	
Sumner "	118.49	
Ward "	29.01	
Walker "	51.74	
Waterston Gift (balance),	404.34	
J. Huntington Wolcott Fund,	34.89	1,982.65

DIVINITY SCHOOL.

Divinity School (balance),	\$4,191.51	
Jackson Foundation,	11.16	
Thomas Cary Scholarship,	49.57	
Abner W. Buttrick Fund,	67.09	4,319.33

LAW SCHOOL.

Law School (balance), transf. to Law School Library Fund, 70,375.66

LAWRENCE SCIENTIFIC SCHOOL.

George A. Gardner Fund, 78.16

MUSEUM OF COMPARATIVE ZOÖLOGY.

Virginia Barret Gibbs Scholarship, 9.91

Amount carried forward, \$94,863.29

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,	\$3,703.34	\$29,745.19
George William Sawin Fund,	179.13	
Dr. A. P. Peabody Memorial Fund,	25.06	
Elizabeth Torrey Bequest,	44.31	
Gifts for Sanskrit Department (balance),	906.55	
Gifts for Classical Library (balance),	53.40	
Sundry Gifts (unexpended balances),	722.28	5,634.07

LIBRARY.

Homer Fund,	\$2.07	
Lowell "	215.19	
Tucker "	56.31	
Salisbury Fund,	42.68	
Sundry Gifts (unexpended balances),	67.41	383.66

DIVINITY SCHOOL.

Winn Professorship of Ecclesiastical History,	\$500.00	
Frothingham Professorship,	1,692.68	
Louisa J. Hall Fund,	24.41	
Rushton Dashwood Burr Fund,	108.41	
John W. Quinby Fund,	79.01	
George Chapman Scholarship,	13.45	
Joshua Clapp "	66.56	
J. Henry Kendall "	17.36	
Nancy Kendall "	6.57	
Beneficiary Money Returned,	167.24	2,675.69

LAW SCHOOL.

Bemis Professorship,	\$2,746.41	
Scholarship money returned,	737.14	3,483.55

MUSEUM OF COMPARATIVE ZOÖLOGY.

Museum of Comparative Zoölogy (balance),	\$13,126.81	
Sturgis Hooper Fund,	4,399.75	17,526.56

MEDICAL SCHOOL.

John B. and Buckminster Brown Professorship,	\$64.89	
William O. Moseley Fund,	2,214.93	
Medical Library Fund,	58.65	
Charles Eliot Ware Memorial Fellowship,	14.13	
John Ware Memorial Fellowship,	2.37	
Amounts carried forward,	\$2,354.97	\$59,448.72

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$94,863.29

MEDICAL SCHOOL.

Medical School (balance),	\$1,737.66	
Warren Fund for Anatomical Museum,	355.44	
Boylston Fund for Medical Prizes,	50.55	
Boylston Fund for Medical Books,	213.66	
George Fabyan Fund,	596.77	
J. Ingersoll Bowditch Fund,	8.82	
Surgical Laboratory Fund,	19.60	2,982.50
		<hr/>

OBSERVATORY.

Observatory (balance),	\$269.82	
Bruce Gift (balance),	504.94	
Uriah A. Boyden Fund,	2,213.59	2,988.35
		<hr/>

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

Peabody Collection Fund,	\$640.24	
Thaw Fund,	2.03	
Huntington Frothingham Wolcott Fund,	14.51	656.78
		<hr/>

OTHER FUNDS FOR SPECIAL PURPOSES.

Bussey Institution,	\$738.04	
Woodland Hill Fund,	3,772.35	
Lewis and Harriet Hayden Scholarship,	94.15	
Sundry Balances,	283.28	4,887.82
		<hr/>

FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.

Daniel Williams Fund,	\$49.14	
Sarah Winslow Fund,	15.45	64.59
		<hr/>

Sundry balances used up.

Robert Treat Paine Prizes,	\$50.00	
Jefferson Physical Laboratory,	438.65	
George Griswold Van Rensselaer Fellowship,	250.00	738.65
		<hr/>

Loss from change of Special Investment.

Price Greenleaf Fund,	110.00	
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Decrease of Stock Account by excess of expenditures over income, in College, Library, and University Accounts,	3,846.32	
		<hr/>

Amount carried forward, \$111,138.30

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,	\$2,354.97	\$59,448.72
George Cheyne Shattuck Memorial Fellowship, .	3.81	
David Williams Cheever Scholarship,	45.86	
Alfred Hosmer Linder "	22.61	
C. M. Jones "	18.27	
Isaac Sweetser "	19.37	
Charles Pratt Strong "	38.47	
Edward Wigglesworth "	23.22	
John Foster Fund (balance),	138.57	
William H. Thorndike Prize Fund,	235.06	2,900.21

DENTAL SCHOOL.

Dental School (balance),	\$4,900.64	
Gifts for Building,	467.17	5,367.81

OBSERVATORY.

David Sears Fund,	\$712.16	
Josiah Quincy Fund,	428.35	
Draper Memorial (balance),	831.25	1,971.76

**PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY
AND ETHNOLOGY.**

Peabody Museum of American Archaeology and Eth- nology (balance),	\$670.96	
Peabody Professor Fund,	39.26	
Hemenway Fund,	78.60	
Robert C. Winthrop Scholarship,	91.98	880.80

OTHER FUNDS FOR SPECIAL PURPOSES.

O. W. Doe Scholarship,	\$70.56	
Henry Willard Williams Fund,	403.57	
Arboretum Construction Gifts,	37.49	
James Arnold Fund,	344.15	
Robert Troup Paine Fund,	1,417.50	
Gray Fund for Engravings,	50.91	
John Witt Randall Fund,	1,916.15	
Fund of the Class of 1834,	40.00	
Fund of the Class of 1844,	34.35	
Gospel Church Fund,	231.04	
Anonymous Annuity Fund,	21.30	
Bursar's Sundry Accounts,	8,449.15	
Gains and Losses for General Investments,	945.83	13,962.00

Amount carried forward, \$84,531.30

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$111,138.30

Amount carried forward, \$111,138.30

*Statement showing Changes in the Different Funds***INCREASE.**

Amount brought forward,		\$84,531.30	
Increase of Funds established during the year.			
Harvard Memorial Society Fund,	\$8.74		
William M. Prichard Fund,	191.19		
Unknown Memorial Fund,	1,697.02		
Ralph Hamilton Shepard Memorial Fund, .	36.18		
Asa Gray Professorship of Systematic Botany, .	509.85		
Francis Hathaway Cummings Scholarship,	45.54		
Morey Willard Buckminster " " "	18.22		
William Hilton " " "	26.04		
Thayer " " "	340.67		
Hennen Jennings " " "	201.76		
Charles B. Porter " " "	63.54		
John W. and Belinda L. Randall Fund, . .	145.65		
William L. Bradley Fund,	655.50	3,939.90	
Credit balances created.			
Gifts for the Improvement of The Soldier's Field, . .	\$14,579.35		
Law School Library Fund,	100,000.00		
Gifts for Pathological Department Library,	1,592.34		
Arnold Arboretum,	333.20		
George Emerson Lowell Scholarship,	66.66		
Edith Rotch Bequest,	5,018.22		
Gift for greenhouses at the Botanic Garden,	7,000.00	128,589.77	
Gain from change of Investments.			
Harvard Ellis Fund,	\$8,523.75		
Henry Willard Williams Fund,	7,137.00	15,660.75	

Total, \$232,721.72

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, **\$111,138.30**

Balance, which is the net increase of the Funds and balances for the year ending July 31, 1898, excluding gifts for capital account,	121,583.42
Total,	<u>\$232,721.72</u>

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 88.

TABLE NO. I.
THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the Stock Account,			
From general investment,	. . . . .	\$18.88	
“ special “	. . . . .	<u>3,001.75</u>	\$3,020.63
Income of the following funds:—			
Insurance and Guaranty, from special investment,			5,766.21
Israel Munson,	. . . . .		688.27
Leonard Jarvis,	. . . . .		737.31
John C. Gray, from special investment,	. . . . .		1,017.76
George B. Dorr, from special investment,	. . . . .		4,721.09
Francis E. Parker, from special investment,	. . . . .		4,633.56
Stanton Blake,	. . . . .		218.50
Charlotte F. Blanchard,	. . . . .		208.49
Joseph Lee, from special investment,	. . . . .		407.11
William F. Weld,			
From general investment,	. . . . .	\$4,062.75	
“ special “	. . . . .	<u>286.24</u>	4,348.99
Henry P. Kidder,	. . . . .		437.00
George Draper,	. . . . .		2,117.61
Isaac Sweetser,	. . . . .		2,050.10
George Baxter Hyde,	. . . . .		218.50
Harvard Ellis,			
From general investment,	. . . . .	\$2,827.83	
“ special “	. . . . .	<u>1,930.69</u>	4,758.52
John W. Carter,	. . . . .		91.03
Theodore Lyman,	. . . . .		200.28
Henry L. Pierce,	. . . . .		1,183.53
Henry L. Pierce Residuary Bequest,	. . . . .		12,563.75
Gore (part),	. . . . .		643.33
Samuel D. Bradford,	. . . . .		<u>229.42</u>
Amount carried forward,			\$50,260.99

TABLE NO. I, CONTINUED.

RECEIPTS.

Amount brought forward,	\$50,260.99	
Income of the following funds (<i>continued</i>):—		
John Cowdin, from special investment,	1,809.12	
John L. Russell	1,021.27	
Henry T. Morgan,	3,581.26	
Henry Harris, $\frac{1}{2}$ income,	654.17	
Seth Turner,	218.50	
William Perkins,	1,311.00	
Walter Hastings, from special investment, . .	1,173.05	
President's,	2,779.71	
Thomas Cotton,	6.77	
Retiring Allowance,	13,982.78	
Lectures on Political Economy,	375.73	
Ingersoll Lecture,	237.33	
William Belden Noble Lectures,	382.37	
William Hayes Fogg,		
Interest,	\$2,466.08	
Sales, etc.,	38.88	2,504.96
William M. Prichard,	191.19	
John W. and Belinda L. Randall,	145.65	
J. W. and Belinda L. Randall (construction),	2,092.24	
Parker Fellowships,	2,446.72	
John Thornton Kirkland Fellowship,	468.94	
Harris Fellowship,	473.49	
James Walker Fellowship,	493.59	
Rogers Fellowships,	1,394.82	
Robert Treat Paine Fellowship,	538.34	
John Tyndall Scholarship,	503.86	
Henry Lee Memorial Fellowship,	488.92	
Ozias Goodwin " "	451.12	
Henry Bromfield Rogers Memorial Fellowship,	484.02	
Whiting Fellowships,	929.06	
Francis Hathaway Cummings Scholarship, .	45.54	
Joseph Eveleth,	1,705.48	
Frank Bolles Memorial,	68.30	
Sumner Prize,	120.13	
George B. Sohler Prize,	250.00	
John O. Sargent Prize,	103.35	
James Gordon Bennett Prize,	52.83	
Robert N. Toppan Prize,	151.81	
Ralph Hamilton Shepard Memorial,	36.18	
Gifts for Phillips Brooks House,	635.81	
" " Semitic Collection,	92.19	
" " the improvement of The Soldier's Field, .	108.37	
Amount carried forward,	\$94,770.96	

TABLE NO. I, CONTINUED.

RECEIPTS.

Amount brought forward,		\$94,770.96
For immediate use.		
Gift for Semitic Collection and Library,	\$5,000.00	
“ “ Phillips Brooks House,	10,000.00	
“ “ the improvement of The Soldier's Field, . .	15,699.38	
“ “ one half the cost of the land for a University		
Infirmary,	3,750.00	34,449.38
-		
Balance remaining after dividing the net income among		
the Funds,	\$60.32	
Care of the Sarah Winslow Fund,	5.23	
Sale of catalogues, calendars, directories, &c.,	685.61	
“ “ grass and sand,	33.25	
“ “ houses in No. Harvard St., Brighton,	225.00	
Use of houses by College officers,	1,400.00	
Examination fee for degrees of Ph.D.,	30.00	2,439.41
		<u>\$131,659.75</u>

PAYMENTS.

Overseers' Expenses.		
Advertising,	\$200.10	
Printing President's Annual Report,	1,211.19	
Printing Treasurer's “ “	310.91	
Printing other reports,	609.32	
Stationery and postage,	245.95	
Auditing Treasurer's accounts,	125.00	\$2,702.47
Office Expenses.		
President's,		
Clerical services,	\$530.00	
Other expenses,	198.25	\$728.25
Treasurer's,		
Clerical services,	\$780.80	
Other expenses,	753.25	1,534.05
Bursar's,		
Clerical services,	\$2,524.46	
Other expenses,	1,489.46	4,013.92
Publication Agent's,		
Clerical services,	\$822.23	
Other expenses,	873.07	1,695.30
Supt. of Buildings' and Janitor's,	31.72	
Corporation Rooms (fuel, rent, &c.),	2,579.72	10,582.96
Amount carried forward,		\$13,285.43

TABLE NO. I, CONTINUED.

PAYMENTS.

Amount brought forward,		\$13,285.43	
Salaries.			
President,			
From the University,	\$6,000.00		
“ President’s Fund,	2,990.09		
“ Thomas Cotton Fund,	7.24	\$8,997.33	
Treasurer and Deputy Treasurer,	6,000.00		
Comptroller,	3,750.00		
Bursar,	4,000.00		
Assistant Bursar,	1,000.00		
Corresponding Secretary of the University,	1,350.00		
Recording Secretary of the University,	1,750.00		
Secretary of the Board of Overseers,	200.00		
Publication Agent,	1,750.00		
Clerks Treasurer’s office,	3,150.00		
Bursar’s Assistant,	1,600.00		
Superintendent of Buildings,	2,400.00	35,947.33	
Memorial Hall and Sanders Theatre.			
Repairs,	\$448.18		
Fuel, lighting, furniture, cleaning, &c.,	359.41	807.59	
General Expenses.			
Repairs and improvements,	\$323.94		
Janitors and cleaning,	1,621.34		
Labor,	4,985.46		
Fuel,	1,056.41		
Services and wages,	73.00		
Water,	321.33		
Lighting,	366.15		
Printing,	503.61		
Annual Catalogue and Calendar,	3,623.90		
Stationery and postage,	761.69		
Advertising,	693.45		
Insurance,	87.50		
Taxes,	1,366.80		
Watchmen,	1,587.89		
Freight, diplomas, supplies, and sundries,	534.72		
Music, Commencement,	185.00		
Cleaning portraits,	157.50		
Surveys and plans,	443.00		
Sidewalk assessments,	1,777.44		
Report on heating apparatus,	750.00		
“ “ ventilation,	500.00		
Mercantile agency,	725.00		
Acoustical investigation expenses,	390.51		
Deficit in the School of Veterinary Medicine for 1897-98,	1,728.31	24,563.95	
Amount carried forward,		\$74,604.30	

TABLE NO. I, CONTINUED.

PAYMENTS.

Amount brought forward,		\$74,604.30	
Sundry payments made from Special Funds.			
William Hayes Fogg Fund.			
Collections and expenses,	\$5,697.52		
Salary of Director,	<u>1,000.00</u>	\$6,697.52	
Semitic books and binding,		205.49	
Retiring Allowance Fund,		2,250.00	
Ingersoll Lecture Fund,		190.81	
Frank Bolles Memorial Fund,		58.00	
Gifts for the improvement of The Soldiers' Field, .		1,228.40	
J. W. and Belinda L. Randall (construction),		3,607.37	
William Belden Noble Lectures,		600.00	
Gift for one half the cost of land for a University			
Infirmary,		<u>3,750.00</u>	18,587.59
Fellowships and Scholarships.			
John Parker,		\$2,800.00	
Harris,		250.00	
John Thornton Kirkland,		550.00	
James Walker,		500.00	
Rogers,		750.00	
Morgan,		2,000.00	
Robert Treat Paine,		750.00	
Ozias Goodwin Memorial,		225.00	
Henry Lee Memorial,		450.00	
Henry Bromfield Rogers Memorial,		450.00	
George Griswold Van Rensselaer,		250.00	
John Tyndall,		500.00	
Whiting,		900.00	
University,		<u>3,100.00</u>	13,475.00
Prizes.			
John O. Sargent,		\$100.00	
Robert Treat Paine,		50.00	
Robert N. Toppan,		150.00	300.00
			<u>\$106,966.89</u>

TABLE NO. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.

Instruction,	\$358,725.87	
Receipts from College dormitories, not included in		
University Houses and Lands,	76,530.48	\$435,256.35
Amount carried forward,		<u>\$435,256.35</u>

TABLE NO. II, CONTINUED.

RECEIPTS.

Amount brought forward,	\$435,256.35
Income of Scholarship Funds.	
Abbot,	\$157.10
Alford (accumulating),	65.94
Bartlett,	238.73
Bassett,	251.41
Bigelow,	544.72
Samuel A. Borden (accumulating),	76.78
Bowditch,	4,886.88
Bright, $\frac{1}{2}$ income of Bright Legacy,	1,092.50
Browne,	160.73
Morey Willard Buckminster,	18.22
Burr,	1,367.81
Ruluff Sterling Choate,	268.84
Class of 1802,	343.79
“ 1814,	135.95
“ 1815 (Kirkland),	267.58
“ 1817,	185.99
“ 1828,	151.94
“ 1835,	199.93
“ 1841,	182.19
“ 1852 (Dana),	215.00
“ 1856, from special investment,	600.00
“ 1867,	160.12
Crowninshield,	493.77
George and Martha Derby,	240.74
Julius Dexter,	205.78
Orlando W. Doe (part),	100.00
William Samuel Eliot,	238.86
Fall River,	89.50
Farrar,	268.14
Richard Augustine Gambrill,	472.05
Charles Haven Goodwin. Interest, \$261.76	
Gift,	9.96
Benjamin D. Greene,	177.12
Price Greenleaf,	3,000.00
William Hilton (part),	450.00
Ebenezer Rockwood Hoar,	446.09
Levina Hoar, for the town of Lincoln,	265.96
Hodges,	525.32
Hollis,	255.08
Henry B. Humphrey,	455.49
Hennen Jennings,	201.76
William Merrick,	244.06
Morey,	341.60
Lady Mowlson,	238.30
Amounts carried forward,	\$20,553.49 \$435,256.35

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,		\$20,553.49	\$435,256.35
Income of Scholarship Funds (<i>continued</i>).			
Howard Gardner Nichols,		223.61	
Lucy Osgood (accumulating),		183.28	
Pennoyer,		93.91	
Perkins,		177.20	
Wendell Phillips,		61.70	
Rodger (accumulating),		52.75	
Henry Bromfield Rogers,		148.06	
Edward Russell,		235.28	
Sales,		229.34	
Saltonstall,		193.59	
Leverett Saltonstall,		219.90	
Mary Saltonstall,		299.08	
Savage,		300.00	
Sever,		141.72	
Sewall,		453.69	
Shattuck,		2,099.83	
Slade,		256.96	
Story,		185.59	
Stoughton.			
Interest,	\$52.35		
Special investment,	175.00	227.35	
Thayer.			
From Trustee,	\$1,500.00		
Interest,	1,640.67	3,140.67	
Gorham Thomas,		175.94	
Toppan,		318.53	
Townsend,		1,082.19	
Walcott,		184.28	
Whiting,		475.24	31,713.18
Received for the Warren H. Cudworth Scholarships,	\$600.00		
“ “ George Emerson Lowell “	400.00		
“ “ Matthews Scholarships ($\frac{1}{2}$ net rents of Hall),	5,080.48	6,080.48	
Income of other Beneficiary Funds.			
“Exhibitions,”		\$58.25	
Palfrey “Exhibition,”		85.39	
Robert Keyne,		85.00	
William Brattle,		54.45	
Henry Gibbs,		15.21	
Ephraim Flynt,		14.73	
Thomas Danforth,		32.69	
Anne Mills,		6.86	
Thomas Fitch,		24.52	
Amounts carried forward,		\$377.10	\$473,050.01

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$377.10	\$473,050.01
Other Beneficiary Funds, income of (<i>continued</i>).		
Benjamin Wadsworth,	8.83	
John Ellery,	13.07	
Henry Flynt,	4.89	
Joseph Sewall,	6.55	
Nathaniel Appleton,	18.31	
Edward Holyoke,	11.75	
Mary Lindall,	32.16	
John Glover (accumulating),	97.10	
Quincy Tufts,	487.47	
Moses Day,	238.12	
Munroe,	460.38	
Samuel Ward, from special investment,	25.00	
Price Greenleaf Aid,	14,137.78	
Dr. Andrew P. Peabody Memorial.		
Interest,	\$184.50	
Repayment	25.56	210.06
Scholarship and Beneficiary Money Returned.		
Returned by beneficiaries,	1,225.38	17,353.95
Income of Prize Funds.		
Ward Nicholas Boylston Prizes for Elocution,	\$169.60	
James Bowdoin Prizes for Dissertations, . . .	636.40	
Edward Hopkins Gift for "Deturs."		
From Trustees,	\$204.98	
Interest on unexpended balance,	68.39	273.37
Sales,	45.80	1,125.17
Income of Funds for Instruction.		
Alford Professorship,	\$1,212.63	
Boylston "	1,238.33	
Eliot "	944.75	
Eliot " (Jon. Phillips' Gift), . . .	350.00	
Erving "	152.95	
Fisher "	1,572.81	
Asa Gray "	509.85	
Hersey " $\frac{3}{5}$ income of the Fund,	530.09	
Hollis " (Mathematics),	163.74	
Hollis " (Divinity),	1,508.44	
McLean "	1,881.85	
Perkins "	917.70	
Plummer "	1,093.37	
Pope "	2,294.25	
Rumford "	2,466.47	
Smith "	1,011.22	
Amounts carried forward,	\$17,848.45	\$491,529.13

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,		\$17,848.45	\$491,529.13
Income of Funds for Instruction (<i>continued</i>).			
Fund for Permanent Tutors,		709.69	
Thos. Lee, for the Hersey Professorship,		950.21	
Thos. Lee, for Reading,		690.33	
Class Subscription,		6,563.00	
Henry Flynt,		15.03	
Paul Dudley,		137.83	
Professorship of Engineering,		1,783.22	
Abbott Lawrence,		2,689.12	
James Lawrence,		2,201.39	
John B. Barringer,		1,341.02	
Arthur Rotch,		1,092.50	
Gifts for salaries,		5,250.00	41,271.79
<hr/>			
Income of Jonathan Phillips unrestricted Fund, . .	\$1,376.55		
“ “ John A. Blanchard “ “ . .	45.88		
“ “ Daniel H. Pierce “ “ . .	600.61		
“ “ J. W. P. Abbot Fund (accumulating), .	312.11		
“ “ John E. Thayer “	671.67		
“ “ Fund for Religious Services,	45.19		
“ “ Gurney Fund,	8,469.37		
“ “ Classical Publication Fund of the Class of 1856,	309.00		
“ “ Increase Sumner Wheeler Fund, . .	2,185.00		
“ “ Henry Warren Torrey Fund.			
Interest,	\$454.74		
Sales,	323.32	778.06	
“ “ Elizabeth Torrey Bequest,	44.31		
“ “ Joseph Lovering Fund for Physical Research,	354.84		
“ “ Cyrus M. Warren Fund,	267.75		
“ “ Chauncey Wright Fund,	39.37		
“ “ George A. Gardner Fund,	243.76		
“ “ Francis James Child Memorial Fund, .	485.90		
“ “ George W. Sawin Fund,	179.13		
“ “ Unknown Memorial Fund,	1,697.02		
Edith Rotch Bequest,	\$5,000.00		
Interest,	18.22	5,018.22	23,123.74
<hr/>			
Hemenway Gymnasium.			
For use of lockers,			4,358.50
<hr/>			
Jefferson Physical Laboratory.			
Income from Endowment,	\$3,277.50		
Interest on unexpended balance,	19.18		3,296.68
<hr/>			
Amount carried forward,			\$563,579.84

TABLE NO. II, CONTINUED.

RECEIPTS.

Amount brought forward,	\$563,579.84	
Sanskrit Department.		
Interest on unexpended balance,	\$73.25	
Additional gift from Henry C. Warren ,	750.00	
Sale of publications,	154.21	977.46
<hr/>		
Botanic Garden and Botanic Museum.		
Income of Botanic Department Fund,	\$1,738.39	
“ “ Lowell Fund ,	2,900.89	
“ “ John L. Russell Fund ,	21.85	
Use of house,	700.00	
Gifts for present use,	5,500.00	
“ the construction of Greenhouses,	7,000.00	17,861.13
<hr/>		
Herbarium.		
Income of Fund,	\$1,166.62	
Income of John L. Russell Fund ,	65.55	
Received from Asa Gray's copyrights,	1,806.31	
Sale of check lists, duplicate books, and index cards,	13.24	
“ “ publications,	560.86	3,612.58
<hr/>		
Classical Department.		
Sales of publications,		201.30
Sundries.		
For use of rooms by College Society,	\$499.99	
Sale of tickets to Commencement Dinner,	662.00	
“ hymn books,	56.83	
“ publications,	1,424.45	
“ old examination papers,	254.29	
“ keys,	22.00	
“ Geographical models,	363.75	
Fees for admission and condition examinations, . .	2,356.00	
“ Summer Courses, \$15,185.00		
Other receipts from Summer Courses,	186.21	15,371.21
Fees for use of camp at Marthas Vineyard,	67.69	
Laboratory fees received.		
Chemistry,	\$12,520.22	
Mineralogy,	395.00	
Physics,	2,907.50	
Philosophy,	182.50	
Hygiene,	470.00	
Engineering,	982.50	
Botany,	1,022.50	
Zoölogy,	715.00	
Geology,	752.50	19,947.72
<hr/>		
Amounts carried forward,	\$41,025.93	\$586,232.31

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$41,025.93	\$586,232.31
Gifts for books for class-room libraries,	1,350.02	
" cases for cryptogamic collection,	800.00	
Gift for Ropes Prize,	100.00	
" Greek Department,	500.00	
Unexpended appropriation returned,	250.00	
Repayment of advances for books,	16.00	44,041.95
		<hr/>
		\$630,274.26

PAYMENTS.

Paid the incumbents of the following Scholarships.

Abbot,	\$200.00
Bartlett,	333.34
Bassett,	270.00
Bigelow,	500.00
Bowditch,	4,833.32
Bright,	1,066.66
Browne,	150.00
Burr,	1,066.68
Ruluff Sterling Choate,	300.00
Class of 1802,	300.00
" 1814,	166.66
" 1815 (Kirkland),	200.00
" 1817,	150.00
" 1828,	150.00
" 1835,	100.00
" 1841,	266.66
" 1852 (Dana),	200.00
" 1856,	600.00
" 1867,	100.00
Crowninshield,	466.66
Warren H. Cudworth,	600.00
George and Martha Derby,	250.00
Julius Dexter,	150.00
O. W. Doe,	100.00
William Samuel Eliot,	166.66
Joseph Eveleth,	933.34
Fall River,	80.00
Farrar,	333.34
Richard Augustine Gambrill,	400.00
Charles Haven Goodwin,	300.00
Benjamin D. Greene,	200.00
Price Greenleaf,	3,100.00
Hilton,	450.00
Ebenezer Rockwood Hoar,	400.00

Amount carried forward, \$18,883.32

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward, \$18,883.32

Paid the incumbents of the following Scholarships (*cont'd*).

Levina Hoar, for the town of Lincoln,	250.00	
Hodges,	200.00	
Hollis,	200.00	
Henry B. Humphrey,	400.00	
George Emerson Lowell,	333.34	
Matthews,	5,000.00	
William Merrick,	200.00	
Morey,	300.00	
Lady Mowson,	200.00	
Pennoyer,	220.00	
Rebecca A. Perkins,	150.00	
Wendell Phillips Memorial,	53.34	
Henry Bromfield Rogers,	100.00	
Edward Russell,	200.00	
Sales,	166.66	
Saltonstall,	200.00	
Leverett Saltonstall,	200.00	
Mary Saltonstall,	350.00	
Savage,	300.00	
Sever,	150.00	
Sewall,	400.00	
Shattuck,	2,150.20	
Slade,	166.66	
Story,	150.00	
Thayer,	2,800.00	
Gorham Thomas,	200.00	
Toppan,	300.00	
Townsend,	1,116.66	
Walcott,	100.00	
Whiting,	333.34	\$35,773.52

Paid other Beneficiaries from the following Funds.

Exhibitions,	\$58.25	
Palfrey Exhibition,	80.00	
Quincy Tufts,	487.47	
Day,	238.12	
Munroe,	460.38	
Samuel Ward,	25.00	
Price Greenleaf Aid,	15,666.00	
Robert Keyne,	85.00	
William Brattle,	54.45	
Henry Gibbs,	13.10	
Ephraim Flynt,	14.73	
Dr. Andrew P. Peabody Memorial,	185.00	
Scholarship and Beneficiary money returned, . . .	1,412.78	18,780.28

Amount carried forward, \$54,553.80

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,		\$54,553.80	
Prizes.			
Boylston Prizes for Elocution,	\$195.00		
Bowdoin Prizes for Dissertations,	600.00		
Sales,	45.00		
"Deturs" from Hopkins Donation,	235.13		1,075.13
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Sundry payments made from Special Funds.			
John E. Thayer Fund.			
Expenses of Quarterly Journal of Economics, . .	\$732.28		
Henry Warren Torrey Fund.			
Expenses on account of Harvard Historical Studies, .	1,024.39		
Cyrus M. Warren Fund.			
Expenses in Chemical Department,	414.10		
George A. Gardner Fund.			
Photographs, &c., for Geological Department, . .	342.37		
Chauncey Wright Fund.			
Books for Mathematical Department,	32.14		
Stoughton Scholarship Fund.			
Expenses on account of Stoughton Pasture, . . .	550.00		
The Joseph Lovering Fund for Physical Research.			
Expenses for physical research,	675.83		
Classical Publication Fund of the Class of 1856.			
Printing Studies in Classical Philology,	300.00		
Francis James Child Memorial Fund,	1,203.79		5,274.90
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Jefferson Physical Laboratory.			
Spent on building and fixtures,	\$88.54		
Laboratory expenses,	\$4,299.59		
Less part paid by the College,	600.00	3,699.59	3,788.13
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Botanic Garden and Botanic Museum.			
Salaries, labor, repairs, materials, &c.,	\$9,377.36		
Interest on advances,	680.72		10,058.08
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Herbarium.			
Salaries, labor, repairs, materials, &c.,			6,370.41
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Hemenway Gymnasium.			
Salaries and wages,	\$7,299.63		
Janitors and cleaning,	2,446.26		
Fuel, water, gas, printing, and sundries,	2,402.59		
Repairs and improvements,	751.02		
Apparatus,	750.00	\$13,649.50	
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Less amount received from other departments, . .	1,760.06		11,889.44
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Amount carried forward,			\$93,009.89

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward, \$93,009.89

Appleton Chapel.

Preaching and morning services,	\$2,978.80	
Organist and Choir-master,	1,750.00	
Choir,	1,500.00	
Music and binding,	374.87	
Fuel, gas, cleaning, &c.,	766.33	
Services and wages,	229.00	7,599.00

Summer Schools.

Salaries,	\$11,417.50	
Clerical services,	400.00	
Supplies, materials, cleaning, &c.,	779.61	
Printing,	399.02	
Advertising,	240.48	
Instruments and apparatus,	30.30	
Stationery and postage,	132.15	13,399.06

Paid from gifts for books for Political Economy Dept.,	\$100.26	
“ “ “ “ French “	185.72	
“ “ “ “ German “	35.26	
“ “ “ “ Sanskrit “	116.76	
“ “ “ “ English “	13.66	
“ “ “ “ Architectural “	344.27	
“ “ “ “ Social Questions,	12.02	
“ “ “ “ Classical Library,	147.90	
“ “ “ “ Historical “	34.95	990.80

Paid from gifts for illustrated lectures in Latin and Greek

Departments,	\$32.38	
“ “ Harvard Oriental Series,	70.91	
“ “ Cryptogamic Herbarium,	875.35	
“ “ Geographical Models, and sales . . .	454.08	1,432.72

Appropriations for collections, laboratories, &c.

Physical apparatus (Prof. Trowbridge),	\$1,000.00
Chemistry (Prof. H. B. Hill),	500.00
Mineralogy (Prof. Wolff),	500.00
Petrography (Prof. Wolff),	150.00
Geology (Prof. Davis),	550.00
Geography (Prof. Davis),	120.00
Mining and Metallurgy (Asst. Prof. Smythe), . . .	450.00
Botany (Prof. Goodale),	250.00
Botany (Prof. Farlow),	200.00
Zoölogy (Prof. Mark),	400.00

Amounts carried forward, \$4,120.00 \$116,431.47

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$4,120.00	\$116,431.47
Appropriations for collection, laboratories, &c. (<i>cont'd</i>).		
Zoölogy, for publications,	400.00	
Psychology and Psychological Review (Prof. Münsterberg),	150.00	
Fine Arts and Drawing (Prof. Moore),	350.00	
Anthropology (Prof. F. W. Putnam),	200.00	
Laboratory fees appropriated,	18,965.22	
Fuel and services in Nat. Hist. Laboratories, . . .	1,500.00	
Fuel, services, &c., in Jefferson Ph. Laboratory,	600.00	26,285.22
Salaries.		
Instruction,	\$333,143.11	
Deans,	4,000.00	
Chairmen of Committees,	1,700.00	
Medical Visitor, Recorder, Secretary and Curator,	4,600.00	
Examination Proctors,	1,480.50	344,923.61
Payments for College Edifices not valued on Treasurer's books.		
Cleaning and care,	\$17,678.65	
Insurance,	418.00	
Repairs, improvements, &c.,	8,287.48	26,384.13
General Expenses.		
Deans and Chairmen of Committees, clerical and office expenses,	\$9,207.07	
Commission on Admission to N. E. Colleges, . . .	122.20	
Reading examination books,	2,034.00	
Services of proctors,	1,449.49	
" assistants to instructors,	4,295.34	
" undergraduates,	314.55	
" mechanics in department of Physiology and Hygiene,	900.00	
" mechanics in department of Electrical Engineering,	1,165.05	
" mechanics in department of Mechanical Engineering,	1,254.70	
" Head Guide in College grounds,	45.82	
Expenses in History 13,	165.50	
" of Military drill,	203.80	
" of summer expeditions, Scientific School,	584.18	
Attendants in department libraries and laboratories,	1,707.40	
Admission examinations,	2,440.49	
Lawrence Scientific School Scholarships and assistance,	3,950.00	
Electric power,	550.00	
Amounts carried forward,	\$30,389.59	\$514,024.43

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$30,389.59	\$514,024.43
General Expenses (<i>continued</i>).		
Pews hired in Cambridge churches,	1,727.50	
Commencement Dinner,	614.19	
Fuel,	6,385.13	
Water,	1,384.02	
Lighting,	4,244.62	
Printing office, expenses,	\$17,607.66	
Less receipts,	<u>14,012.89</u>	3,594.77
Printing,	2,589.70	
Furniture,	675.50	
Instruments and apparatus,	1,110.11	
Stationery and postage,	1,534.72	
Books,	602.23	
Binding,	148.95	
Advertising,	1,518.71	
Watchmen,	1,034.09	
Freight, diplomas, and sundries,	946.96	
Supplies, tools, and materials,	2,162.19	
Legal services,	72.00	
Music, Class-Day,	125.00	
Receptions,	124.19	
Use of Grays 18 by English department,	100.00	
Repayment to Mus. of Comp. Zoölogy for expenditures on behalf of the Undergraduate Department,	18,250.00	79,334.17
		<u>\$593,358.60</u>

TABLE NO. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.		
Subscription for Library (1859),	\$461.17	
Nathaniel I. Bowditch,	92.34	
Bright, $\frac{1}{2}$ income of the Bright Legacy,	1,092.50	
Edwin Conant, $\frac{1}{4}$ income,	303.92	
Constantius, $\frac{1}{2}$ income. Interest,	\$568.47	
Sales,	<u>8.20</u>	576.67
Denny,		232.05
Eliza Farrar,		230.04
Horace A. Haven,		137.74
Francis B. Hayes. Interest,	\$439.23	
Gift,	<u>10.00</u>	449.23
George Hayward,		229.82
Amount carried forward,	\$3,805.48	

TABLE NO. III, CONTINUED.

RECEIPTS.

Amount brought forward,	\$3,805.48	
Income of the following Funds, &c. (<i>continued</i>).		
Thomas Hollis,	104.31	
Sidney Homer,	93.34	
Frederick A. Lane,	231.00	
Lowell,	1,067.98	
Charles Minot,	2,644.55	
Lucy Osgood,	313.33	
Mary Osgood,	308.65	
Francis Sales,	177.42	
Stephen Salisbury,	231.13	
Sever,	885.41	
Samuel Shapleigh,	173.71	
George B. Sohler (part),	35.80	
Charles Sumner,	1,639.49	
Ichabod Tucker, from special investment, . . .	200.00	
James Walker,	693.69	
Thomas W. Ward,	231.39	
Executors of Robert Waterston.		
Interest,	\$31.33	
Sales,	10.00	41.33
J. Huntington Wolcott,	440.58	\$13,318.59
James Savage Fund for general expenses ($\frac{3}{4}$ income),	\$1,151.55	
Edwin Conant " " " $\frac{3}{4}$ "	911.77	
Constantius " " " $\frac{1}{2}$ "	568.47	
Daniel Treadwell " " "	521.12	
Daniel Austin " " "	272.25	
Eben Wright " " "	4,370.00	
Jarvis " " "	21.85	
Price Greenleaf " " "	14,137.78	21,954.79
Fees for use of Library,	\$75.00	
Sale of Scudder catalogues,	24.00	
Sale of duplicate books,	188.25	
Received for books lost,	34.90	
Repayment of part of general average deposit,	15.55	
Fines,	73.95	
Gifts for books,	125.57	
Gift for Dante Collection,	100.00	637.22
		<u>\$35,910.60</u>

PAYMENTS.

For Books, from	
Subscription Fund (1859),	\$497.62
Bowditch "	96.78
Bright "	1,226.60
Conant "	412.46
Amount carried forward,	\$2,233.46

TABLE NO. III, CONTINUED.

PAYMENTS.

Amount brought forward,	\$2,233.46	
For Books, from (<i>continued</i>).		
Constantius Fund,	627.65	
Denny "	274.47	
Farrar "	248.43	
Haven "	163.00	
Hayes "	485.06	
Hayward "	236.19	
Hollis "	120.40	
Homer "	91.27	
Lane "	240.77	
Lowell "	852.79	
Minot "	3,038.55	
Lucy Osgood "	382.32	
Mary Osgood "	383.36	
Sales "	270.36	
Salisbury "	188.45	
Sever "	1,103.36	
Shapleigh "	188.52	
Sohier "	64.49	
Sumner "	1,757.98	
Tucker "	143.69	
Walker "	745.43	
Ward "	260.40	
Waterston "	445.67	
J. Huntington Wolcott Fund,	475.47	
Coolidge Gifts,	169.85	
Gardner Gift,	10.90	
Furness Gift,	13.92	
Subscription of 1880,	37.21	
Dante Society Gift,	31.77	
Duplicate money,	133.21	\$15,418.40
Salaries,	\$12,791.66	
Services and wages,	17,821.44	
Repairs and improvements,	575.35	
Janitors and cleaning,	824.33	
Fuel,	973.49	
Water,	21.17	
Lighting,	1,279.72	
Printing,	1,787.98	
Furniture,	222.05	
Stationery and postage,	416.39	
Binding,	2,008.51	
Insurance,	31.70	
Freight, supplies, and sundries,	618.89	39,372.63
		<hr/>
		\$54,791.08

TABLE No. IV.
DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.

Divinity School, balance,	\$1,425.32	
Benjamin Bussey Professorship,	1,642.42	
Parkman Professorship,	699.90	
John Hancock Professorship,	\$262.55	
C. L. Hancock. Interest,	3,055.33	
From special investments,	318.31	3,636.19
Winn Professorship of Ecclesiastical History,	2,265.67	
Frothingham Professorship,	1,692.68	
Samuel Dexter,	886.24	
Henry Lienow,	401.38	
Mary P. Townsend,	229.42	
Winthrop Ward,	91.77	
Samuel Hoar,	45.88	
Abraham W. Fuller,	45.88	
Caroline Merriam,	45.88	
Joseph Baker,	344.14	
Thomas Tileston of New York Endowment,	1,748.00	
Henry P. Kidder,	437.00	
Oliver Ames,	742.90	
Abby Crocker Richmond,	43.70	
New Endowment (1879),	3,121.36	
William B. Spooner,	437.00	\$19,982.73

Income of Scholarship and Beneficiary Funds.

Jackson Foundation,	\$628.84	
Thomas Cary,	230.43	
George Chapman,	113.45	
Joshua Clapp,	186.56	
J. Henry Kendall,	217.36	
Nancy Kendall,	146.57	
William Pomroy,	45.88	
Abner W. Buttrick,	572.91	
Beneficiary money returned (balance),	167.24	2,309.24

Income of other Funds.

Joshua Clapp,	\$95.18
Hannah C. Andrews,	22.94
Lewis Gould,	39.81
Haven,	27.31
Daniel Austin,	38.89
Adams Ayer,	43.70
John W. Quinby,	79.01
John L. Russell,	43.70
Edwin Conant,	218.50

Amounts carried forward,	\$609.04	\$22,291.97
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TABLE NO. IV, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$609.04	\$22,291.97
Income of other Funds (<i>continued</i>)		
Louisa J. Hall,	25.39	
Rushton Dashwood Burr,	136.78	
Benjamin Bussey Trust ($\frac{1}{4}$ net income for use of this School),	5,252.18	6,023.39
Sale of duplicate books, &c.,	\$45	
" tickets to Alumni Dinner,	28.00	
Fines,	4.85	
Term Bills.		
Instruction,	\$5,142.24	
Receipts from Divinity Hall,	2,961.50	8,103.74
		8,137.04
		<u>\$36,452.40</u>

PAYMENTS.

Salaries for instruction,	\$26,991.56	
Secretary and Librarian,	1,750.00	
Services and wages,	779.94	
Cataloguing,	1,076.00	
Labor, repairs, and improvements,	1,037.51	
Cleaning and care of rooms,	1,279.88	
Fuel,	452.75	
Water,	74.00	
Lighting,	211.83	
Printing,	614.39	
Furniture,	183.26	
Stationery and postage,	34.80	
Books,	752.17	
Binding,	55.00	
Insurance,	165.03	
Advertising,	147.67	
Diplomas and sundries,	63.87	
Taxes on Chelsea Real Estate,	37.84	
Collation,	70.00	
Proportion of expenses of Gymnasium,	119.73	\$35,897.23
Paid the incumbents of the following Scholarships:		
Jackson Foundation,	\$640.00	
Thomas Cary,	280.00	
George Chapman,	100.00	
Joshua Clapp,	120.00	
J. Henry Kendall,	200.00	
Nancy Kendall,	140.00	1,480.00
Amount carried forward,		<u>\$37,377.23</u>

TABLE NO. IV, CONTINUED.

PAYMENTS.

Amount brought forward,	\$37,377.23	
Paid beneficiaries from the following Funds:		
Abner W. Buttrick,	\$640.00	
William Pomroy,	49.46	689.46
Paid for Books from the following Funds:		
Louisa J. Hall,	\$.98	
Rushton Dashwood Burr,	28.37	29.35
		<u>\$38,096.04</u>

TABLE NO. V.

LAW SCHOOL.

RECEIPTS.

Income of the following Funds.

Law School, balance,	\$6,139.28	
Nathan Dane Professorship,	688.27	
Benjamin Bussey "	1,047.93	
Isaac Royall "	364.50	
Weld "	4,151.28	
Bemis "	2,746.41	
Law School Book Fund,	2,054.82	
Benjamin Bussey Trust ($\frac{1}{4}$ net income for use of this School),	5,252.18	
Scholarship money returned,	37.14	\$22,481.81
Term Bills, instruction,		80,200.00
Repayment of Scholarship money with interest,		700.00
		<u><u>\$103,381.81</u></u>

PAYMENTS.

Salaries for instruction,	\$41,250.00
Librarian and Assistants,	5,140.29
Secretary,	625.00
Reader to the Dane Professor,	382.28
Services of proctors,	334.25
Scholarships,	3,000.00
Repairs and improvements,	2,253.92
Janitor, cleaning, &c.,	1,481.42
Fuel,	736.53
Water,	84.50
Lighting,	893.92
Printing,	608.11
Furniture,	172.08
Stationery and postage,	417.14

Amount carried forward, \$57,379.44

TABLE NO. V, CONTINUED.

PAYMENTS.

Amount brought forward,	\$57,379.44	
Books,	7,402.31	
Binding,	1,597.52	
Advertising,	120.00	
Freight, diplomas, and sundries,	438.06	
Proportion of expenses of Gymnasium,	1,640.33	
Insurance,	1,430.68	
Travelling expenses,	215.58	
Electric power,	50.00	\$70,273.92

TABLE NO. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.

Medical School, balance,	\$3,278.99
Jackson,	838.73
Warren, for Anatomical Museum,	607.87
Ward Nicholas Boylston, for Medical Prizes,	149.45
Ward Nicholas Boylston, " " Books,	160.03
George C. Shattuck,	748.54
George Fabyan,	4,407.10
John B. and Buckminster Brown,	64.89
Hersey Professorship, $\frac{2}{3}$ income of the fund,	353.39
Medical Library,	58.65
Quincy Tufts,	87.40
David Williams Cheever Scholarship,	245.86
Isaac Sweetser Scholarship,	269.37
O. W. Doe "	100.00
C. M. Jones "	268.27
Charles Pratt Strong Scholarship,	178.47
Alfred Hosmer Linder "	222.61
Lewis and Harriet Hayden "	254.03
Edward Wigglesworth "	223.22
Charles B. Porter "	183.54
William Hilton " (part),	225.00
George Cheyne Shattuck Memorial Fellowship,	228.81
John Ware " "	227.37
Charles Eliot Ware " "	239.13
Edward M. Barringer,	1,114.92
John Foster Fund, income for Medical Students every second year,	138.57
William H. Thorndike Prize,	235.06
Henry Harris, $\frac{1}{2}$ income,	654.16

Amount carried forward, \$15,763.43

TABLE NO. VI, CONTINUED.

RECEIPTS.

Amount brought forward,	\$15,763.43	
Income of the following Funds (<i>continued</i>).		
Mary W. Swett,	688.93	
Samuel W. Swett,	874.00	
Samuel E. Fitz,	80.23	
J. Ingersoll Bowditch,	265.87	
New subscription (1888),	1,693.37	
Surgical Laboratory,	219.37	
William O. Moseley,	2,214.93	
Dr. Ruppaner,	297.47	
Gifts for Pathological Department Library,	35.87	
Ellis Gifts,	41.33	\$22,174.80
Gifts for present use,		8,275.00
Term Bills.		
Instruction,	\$104,006.83	
Graduation fees,	3,720.00	
Matriculation fees,	760.00	
Examination fees and fines,	489.00	
In Chemistry, breakage and chemicals,	1,333.01	
In Physiology, material,	294.00	
In Practical Anatomy, material,	1,116.50	
In Operative Surgery, fees,	204.00	
In Bandaging, fees,	39.40	111,962.74
From Dental and Veterinary Schools for laboratory instruction,	\$2,794.00	
Repayment of advances for the purchase of microscopes,	391.00	
Use of room by Harvard Coöperative Society,	150.00	3,335.00
		<u>\$145,747.54</u>

PAYMENTS.

Boylston Medical Prizes.		
Prizes,	\$150.00	
Advertising,	50.00	\$200.00
Warren Anatomical Museum.		
Expenses and additions to collection,		963.31
J. Ingersoll Bowditch Fund, Physiological apparatus, &c., . .		274.69
George Fabyan Fund, wages and expenses,		1,003.87
Ellis Gifts, services and expenses, Physiology and Pathological Bacteriology,		301.10
Boylston Fund for Books, books and binding,		373.69
Sear's Gifts, books for Pathological Department,		443.53
Faculty Scholarships,	\$880.00	
Edward M. Barringer Scholarship No 1,	\$180.00	
" " " " " 2,	200.00	380.00
Amounts carried forward,	\$1,260.00	\$3,560.19

TABLE NO. VI, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$1,260.00	\$3,560.19
David Williams Cheever Scholarship,	200.00	
O. W. Doe Scholarship,	60.00	
Joseph Eveleth Scholarships,	520.00	
Lewis and Harriet Hayden Scholarship,	348.18	
Hilton Scholarship,	225.00	
C. M. Jones Scholarship,	250.00	
Alfred Hosmer Linder Scholarship,	200.00	
Charles B. Porter "	120.00	
Charles Pratt Strong "	140.00	
Isaac Sweetser Scholarship,	250.00	
Edward Wigglesworth Scholarship,	200.00	
George Cheyne Shattuck Memorial Fellowship, . .	225.00	
Charles Eliot Ware Memorial Fellowship,	225.00	
John Ware Memorial Fellowship,	225.00	4,448.18
Chemistry,	\$1,333.01	
Physiology,	1,014.00	
Anatomy,	1,900.00	
Pathology,	600.00	
Bacteriology,	500.00	
Obstetrics,	150.00	
Histology and Embryology,	550.00	
Therapeutics and Hygiene,	200.00	
Pharmacology,	700.00	
Clinical Medicine,	275.00	
Clinical Surgery,	79.50	
Bandaging and apparatus,	150.00	7,451.51
Graduates courses, fees repaid to Instructors,	\$2,475.00	
Summer " " " "	3,129.00	5,604.00
Salaries for instruction,		92,200.00
Dental School, for laboratory instruction,		1,815.00
General Expenses.		
Dean, and Secretary,	\$800.00	
Repairs and improvements,	2,921.98	
Janitor and cleaning,	5,055.34	
Fuel,	1,832.86	
Water,	717.60	
Lighting,	2,446.97	
Printing,	306.57	
Binding,	68.90	
Furniture,	231.86	
Instruments and apparatus,	21.44	
Stationery and postage,	627.05	
Advertising and catalogues,	1,000.00	
Insurance,	797.00	
Amounts carried forward,	\$16,827.57	\$115,078.88

TABLE NO. VI, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$16,827.57	\$115,078.88
General Expenses (<i>continued</i>).		
Proctors,	595.00	
Collation,	237.13	
Mechanics and laboratory attendants,	7,091.24	
Legal services,	10.00	
Electric fan,	575.00	
" work,	228.75	
" power,	887.98	
Freight, diplomas, and sundries,	531.01	
Supplies and material,	1,310.54	
Elevator,	1,375.00	29,669.22
		<u>\$144,748.10</u>

TABLE NO. VII.

DENTAL SCHOOL.

RECEIPTS.

Income of the following Funds.

Dental School, balance,	\$815.40	
Endowment,	666.69	
Gifts for new building,	467.17	\$1,949.26
Term bills for instruction,	\$17,375.00	
Fees from Laboratory,	2,679.83	20,054.83
From Veterinary School for laboratory instruction,		200.00
From Medical School " " 		1,815.00
Fees from Infirmary,		6,639.98
Gifts for present use,		15.00
Repayment of advances for the purchase of microscopes,		96.95
		<u>\$30,771.02</u>

PAYMENTS.

Salaries for instruction,	\$12,146.00
Curator,	50.00
Medical School, for instruction,	2,300.00
Proctors,	125.00
Repairs and improvements,	660.18
Janitors and cleaning,	1,445.10
Fuel,	408.38
Water,	106.80
Lighting,	205.50
Amount carried forward,	<u>\$17,446.96</u>

TABLE NO. VII, CONTINUED.

PAYMENTS.

Amount brought forward,	\$17,446.96	
Printing,	685.22	
Furniture,	18.70	
Instruments and apparatus,	116.77	
Stationery and postage,	128.72	
Advertising,	408.58	
Services and wages,	762.94	
Supplies, &c.,	4,449.49	
Freight, diplomas, and sundries,	469.33	
Physiology,	380.00	
Chemical apparatus,	300.00	
Delegates expenses,	36.50	
Legal expenses,	200.00	\$25,403.21

TABLE NO. VIII.

MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.

Balance,	\$66.12	
Gray Fund for Zoölogical Museum,	2,185.00	
Agassiz Memorial, interest,	\$12,762.98	
From special investment,	293.69	13,056.67
Teachers and Pupils,		331.86
Humboldt,		338.28
Permanent Fund for Museum of Zoölogy,		5,133.40
Virginia Barret Gibbs Scholarship,		240.09
Sturgis Hooper,	4,571.06	\$25,922.48
Repayment by the College for expenditures on behalf of the Undergraduate Department,	\$18,250.00	
Less advances for building, repaid with interest,	6,167.39	12,082.61
		<u>\$38,005.09</u>

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.

Gray,	\$2,185.00	
Agassiz Memorial, general expenses,	12,078.59	
Teachers and Pupils,	331.86	
Humboldt,	338.28	
Permanent,	5,133.40	\$20,067.13
Sturgis Hooper, expenses on account of Profes- sorship of Geology,	\$171.31	
Virginia Barret Gibbs Scholarship,	250.00	421.31
		<u>\$20,488.44</u>

TABLE NO. IX.

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY
AND ETHNOLOGY.

RECEIPTS.

Income of the following Funds.

Peabody Professor.

From general investment,	\$1,229.98	
“ special “	1,038.84	\$2,268.82

Peabody Collection.

From general investment,	\$1,256.68	
“ special “	1,038.84	2,295.52

Peabody Building.

From general investment,	\$736.04	
“ special “	622.32	1,358.36

Huntington Frothingham Wolcott, 448.49

Thaw. From general investment, \$426.86

“ special “ 700.00 1,126.86

Hemenway, 478.60

Robert C. Winthrop Scholarship, 225.32 \$8,201.97

Gifts for present use, \$1,450.00

Term bills for instruction, 403.56

Dividend on bank deposit, 3.38 1,856.94

\$10,058.91

PAYMENTS.

Paid from the following Funds.

Peabody Professor,	\$2,229.56	
Peabody Collection,	2,935.76	
Peabody Building,	1,358.36	
Huntington Frothingham Wolcott,	463.00	
Thaw,	1,128.89	
Hemenway,	400.00	
Robert C. Winthrop Scholarship,	133.34	8,648.91
From fees for instruction,		403.56
From gifts, &c.,		782.42
		<u>\$9,834.89</u>

TABLE NO. X.

OBSERVATORY.

RECEIPTS.

Income of the following Funds.

Balance,	\$63.85	
Edward B. Phillips,	4,819.85	
James Hayward,	917.70	
Robert Treat Paine,	11,954.48	
Paine Professorship of Practical Astronomy, . . .	2,185.00	
Uriah A. Boyden,	9,126.09	
Augustus Story,	584.71	
David Sears,	1,424.31	
Josiah Quincy,	428.35	
James Savage ($\frac{1}{4}$ net income),	383.85	
Charlotte Harris,	87.40	
Thomas G. Appleton,	218.50	
J. Ingersoll Bowditch,	109.25	
Haven,	245.81	
New Endowment (1882),	2,185.00	\$34,734.15
<hr/>		
Sale of Observatory publications,	\$41.07	
“ grass,	20.00	61.07
<hr/>		
Mrs. Henry Draper, gift for special research (ad- ditional),	\$9,999.96	
Interest on unexpended balance,	30.28	10,030.24
<hr/>		
Use of house by College officer,	\$600.00	
From A. Lawrence Rotch on account of publishing Annals,	750.00	1,350.00
<hr/>		
		\$46,175.46
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PAYMENTS.

From Uriah A. Boyden Fund, supplies, apparatus, services, &c.,	\$11,339.68
“ Draper Memorial, supplies, apparatus, services, &c., . . .	9,198.99
“ Bruce gift, supplies, apparatus, &c.,	504.94
Salaries,	\$10,950.00
Services and wages,	7,307.77
Repairs and improvements on buildings and grounds, . .	2,420.31
Cleaning and care of Observatory,	504.85
Fuel,	333.54
Water,	79.10
Lighting,	27.75
Printing,	1,129.01
Furniture,	111.96
Instruments and apparatus, including repairs on same, .	766.77
Stationery, postage, and telegraphing,	535.10
<hr/>	
Amounts carried forward,	\$24,166.16 \$21,043.61

TABLE NO. X, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$24,166.16	\$21,043.61
Books,	446.90	
Binding,	245.99	
Supplies and materials,	906.70	
Freight, chemicals, and sundries,	222.25	
Use of house,	90.00	
Electric power,	70.44	26,148.44
		<u>\$47,192.05</u>

TABLE NO. XI.

BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance,	\$696.32	
Bussey Trust ($\frac{1}{2}$ net income),	10,504.36	
Woodland Hill Fund (part),	182.44	
Fees for instruction,	575.00	
Sale of wood, hay, and sundries,	251.39	
Sale of animals,	40.00	
Horticultural Department, prizes, sale of flowers, plants, &c.,	2,366.55	
Board of horses, cattle, &c.,	2,647.53	
Use of house by College officer,	600.00	<u>\$17,863.59</u>

PAYMENTS.

Salaries,	\$6,400.00	
Services and wages,	2,693.90	
Repairs and improvements,	793.64	
Fuel,	316.00	
Gas,	98.87	
Water,	8.00	
Printing,	74.25	
Furniture,	10.83	
Books,	108.33	
Advertising,	28.00	
Insurance,	47.00	
Horticultural Department, expenses,	2,534.65	
Grain, farming tools, &c.,	1,082.02	
Sundries,	52.74	
Rebuilding Whitney barn,	3,900.00	
Repairing driveway to Bussey Mansion House	453.40	<u>\$18,601.63</u>

TABLE NO. XI, CONTINUED.

James Arnold Fund.*Receipts.*

Income of Fund,	\$6,883.10
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Payments.

19/20 income carried to Arnold Arboretum,	\$6,538.95
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Arnold Arboretum.*Receipts.*

Income of James Arnold Fund ,	\$6,538.95	
“ William L. Bradley Fund ,	655.50	
Interest on gifts for construction account,	37.49	
Interest on deposit,	11.20	
Sale of grass and materials,	1,824.58	
Gifts for present use,	3,800.00	
Gift for the purchase of books,	2,383.87	15,251.59
		<u> </u>

Payments.

Salary of Director and Assistant,	\$3,500.00	
Expenses of Arboretum, services, labor, &c.,	7,328.01	
Specimens and expenses for Herbarium and Museum,	1,007.77	
Books,	2,389.62	\$14,225.40
		<u> </u>

TABLE NO. XII.

SCHOOL OF VETERINARY MEDICINE.**RECEIPTS.**

Term bills, for instruction,	\$4,874.00	
Fees for use of microscopes,	27.00	\$4,901.00
Fees from Hospital and Forge,	\$15,543.53	
Interest on deposit with New England Trust Co.,	14.07	
Gifts for Charity Hospital,	868.00	
Subscriptions to Hospital,	740.00	
Insurance, on account of fire of March 16, 1898,	226.50	
Fees from Free Clinic,	255.47	17,647.57
		<u> </u>
		<u>\$22,548.57</u>

TABLE NO. XII, CONTINUED.

PAYMENTS.

Salaries for instruction,	\$6,155.82	
Medical School, "	494.00	
Dental School, "	200.00	
Clerk,	350.00	
Services and wages,	5,845.08	
Proctors,	21.00	
Scholarships,	300.00	
Repairs and improvements,	299.56	
Repairs on account of fire of March 16, 1898,	226.50	
Fuel,	326.76	
Water,	106.40	
Lighting,	483.50	
Printing,	161.26	
Furniture,	52.82	
Instruments and apparatus,	136.78	
Stationery, postage, telephone, &c.,	551.86	
Advertising,	152.69	
Taxes,	261.30	
Insurance,	116.15	
Hay, grain, supplies, &c.,	4,882.09	
Freight, diplomas, and sundries,	306.03	
Interest on advances,	1,220.30	
Rent,	1,480.00	
Free Clinic expenses,	146.98	\$24,276.88

TABLE NO. XIII.

MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate,	\$25,058.72
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Payments.

Annuities,	\$4,000.00	
Expenses on Bussey portraits and furniture,	50.00	
One-half of the remaining income to Bussey Institution,	10,504.36	
One-quarter " " Divinity School,	5,252.18	
" " " " Law School,	5,252.18	\$25,058.72

Price Greenleaf Fund.

Receipts.

Income of special investment,	\$31,275.56
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Payments.

Scholarships,	\$3,000.00	
Beneficiary money transferred to College account,	14,137.78	
Balance of income for Library expenses,	14,137.78	\$31,275.56

TABLE NO. XIII, CONTINUED.

Gray Fund for Engravings.

Receipts.

Interest on Fund,	\$733.20	
Sale of Catalogue,	5.00	\$738.20

Payments.

To the Treasurer of the Museum of Fine Arts,	\$222.28	
Expenses and additions to collection,	465.01	\$687.29

Woodland Hill Fund.

Receipts.

Interest on Fund,	\$293.49
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Payments.

Filling Muddy River lot,	\$2,927.50	
Taxes,	455.00	
Plans and surveys,	214.40	
Legal services,	286.50	
Bussey Institution, balance of income,	182.44	\$4,065.84

Daniel Williams Fund.

Receipts.

Interest on Fund,	\$721.05
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Payments.

Treasurer of Mashpee Indians,	\$513.08	
“ “ Herring Pond Indians,	257.11	\$770.19

Sarah Winslow Fund.

Receipts.

Interest on Fund,	\$209.32
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Payments.

Minister at Tyngsborough, Mass.,	\$109.77	
Teacher at “ “	109.77	
Commission on income, credited to University,	5.23	\$224.77

TABLE NO. XIII, CONTINUED.

Class Funds.*Receipts.*

Class of 1834 , income of special investment,	\$40.00	
“ 1844 , “ “ “ “	234.35	
“ 1853 , “ “ “ “	149.00	\$423.35

Payments.

To Secretary of the Class of 1844 ,	\$200.00	
“ “ “ “ “ 1853 ,	149.00	\$349.00

John Witt Randall Fund.*Receipts.*

Interest on Fund,	\$1,304.14	
Sale of books,	969.35	\$2,273.49

Payments.

Salary of Curator and expenses,		\$357.34
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Sundry Accounts.*Receipts.*

Gospel Church Fund (accumulating).		
Interest on Fund,	\$231.04	
Robert Troup Paine Fund (accumulating).		
From special investment,	1,417.50	
Gore Annuity Fund , interest (part),	255.62	
O. W. Doe Scholarship Fund .		
Part of interest on Fund,	30.56	
William Hilton Scholarship .		
Part of interest on Fund,	26.04	
Henry Willard Williams Fund .		
From general investment,	\$292.57	
“ special “	1,273.50	\$1,566.07
Harvard Memorial Society Fund , interest,	8.74	
Anonymous Fund , interest,	221.30	
Gains and Losses for General Investments , gain on		
Chicago Sanitary District 5 per cent. bonds sold, . .	945.83	
Harvard Ellis Fund , gain from change of special		
investments,	8,523.75	
Amount carried forward,	\$13,226.45	

TABLE NO. XIII, CONTINUED.

Amount brought forward,	\$13,226.45	
Henry Williard Williams Fund, gain from change of special investments,	7,137.00	
School of Veterinary Medicine, from University account to provide for the deficit in 1897-98,	1,728.31	
Bursar's sundry accounts,	8,449.15	
Advances to William Belden Noble Lectures, from General Investments,	217.63	
Advances to Charles Haven Goodwin Scholarship. from General Investments,	38.24	
Advances to Jefferson Physical Laboratory, from General Investments,	52.80	
Advances to Department Libraries, from General Invest- ments,	38.27	
Advances to Farrar Book Fund, from General Invest- ments,	7.86	
Advances to George A. Gardner Fund, from General Investments,	20.45	
Advances to Francis James Child Memorial Fund, from General Investments,	89.63	\$31,005.79

Payments.

Gore Fund, annuity,	\$255.62	
Henry Willard Williams Fund, annuity,	1,162.50	
Gurney Fund, annuities,	1,000.00	
Anonymous Fund, annuity,	200.00	
Advances to Botanic Department, repaid in part,	803.05	
Price Greenleaf Fund, loss from change of special investment,	110.00	
Sundry balances,	283.28	\$3,814.45

GENERAL SUMMARY OF THE TABLES.

Table.		Receipts.	Payments.
I.	University,	\$131,659.75	\$106,966.89
II.	College,	630,274.26	593,358.60
III.	Library,	35,910.60	54,791.08
IV.	Divinity School,	36,452.40	38,096.04
V.	Law School,	103,381.81	70,273.92
VI.	Medical School,	145,747.54	144,748.10
VII.	Dental School,	30,771.02	25,403.21
VIII.	Museum of Comparative Zoölogy,	38,005.09	20,488.44
IX.	Peabody Museum of American Archae- ology and Ethnology,	10,058.91	9,834.89
X.	Observatory,	46,175.46	47,192.05
XI.	Bussey Institution,	17,863.59	18,601.63
	James Arnold Fund,	6,883.10	6,538.95
	Arnold Arboretum,	15,251.59	14,225.40
XII.	School of Veterinary Medicine,	22,548.57	24,276.88
XIII.	Bussey Trust,	25,058.72	25,058.72
	Price Greenleaf Fund,	31,275.56	31,275.56
	Gray Fund for Engravings,	738.20	687.29
	Woodland Hill Fund,	293.49	4,065.84
	Daniel Williams Fund,	721.05	770.19
	Sarah Winslow Fund,	209.32	224.77
	Class Funds,	423.35	349.00
	John Witt Randall Fund,	2,273.49	357.34
	Sundry Accounts,	31,005.79	3,814.45
		<hr/>	<hr/>
		\$1,362,982.66	\$1,241,399.24
		1,241,399.24	
		<hr/>	<hr/>
	Balance,	\$121,583.42	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 42.

Certificate of the Committees of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer entered in the Journal kept by him.

The committees appointed by the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1898, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1897, to July 31, 1898, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were on hand at the beginning of said year, or have been received by him during said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

HENRY L. HIGGINSON,	}	<i>Committee on the part of the Corporation.</i>
ARTHUR T. CABOT,		

MOSES WILLIAMS,	}	<i>Committee on the part of the Board of Overseers.</i>
CHAS. HENRY PARKER,		
JACOB C. ROGERS,		
ISRAEL M. SPELMAN,		

BOSTON, January 6, 1899.

UNIVERSITY OF ILLINOIS-URBANA



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